1903

General Catalogue 1903

Utah State University

CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF UTAH

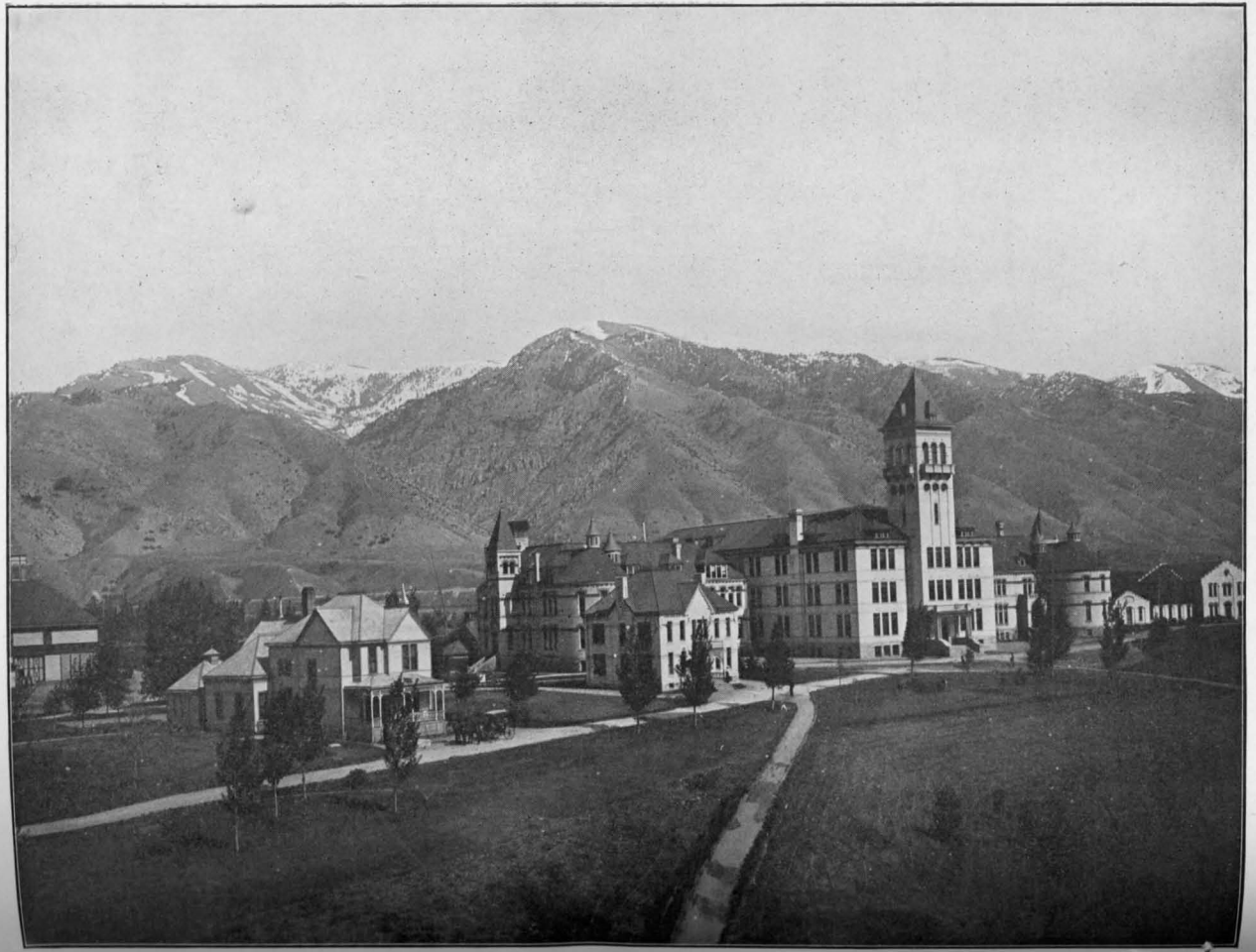
FOR

1903-1904.

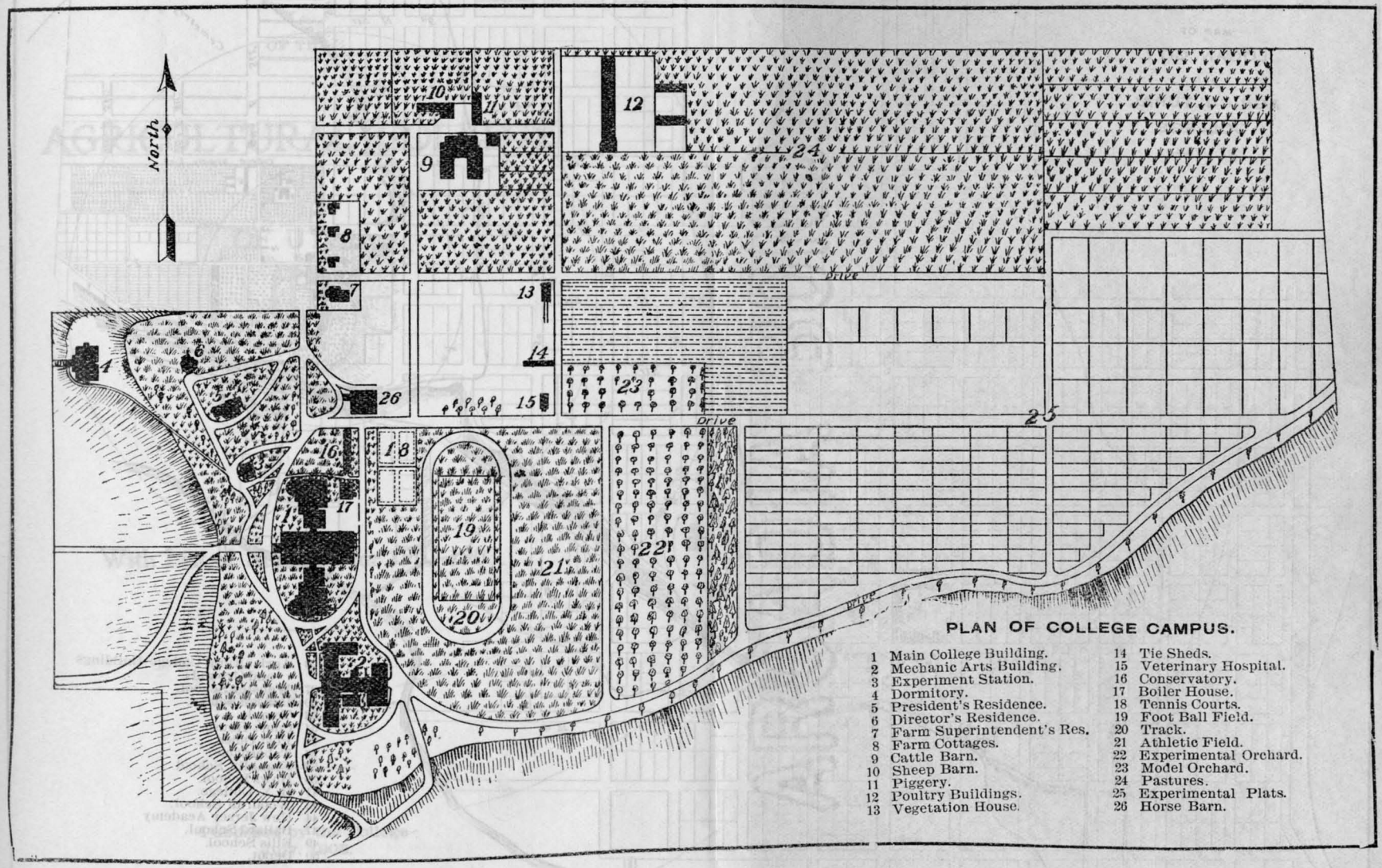
With List of Students for 1902-1903.

LOGAN, UTAH.

Published by the College
July, 1903.

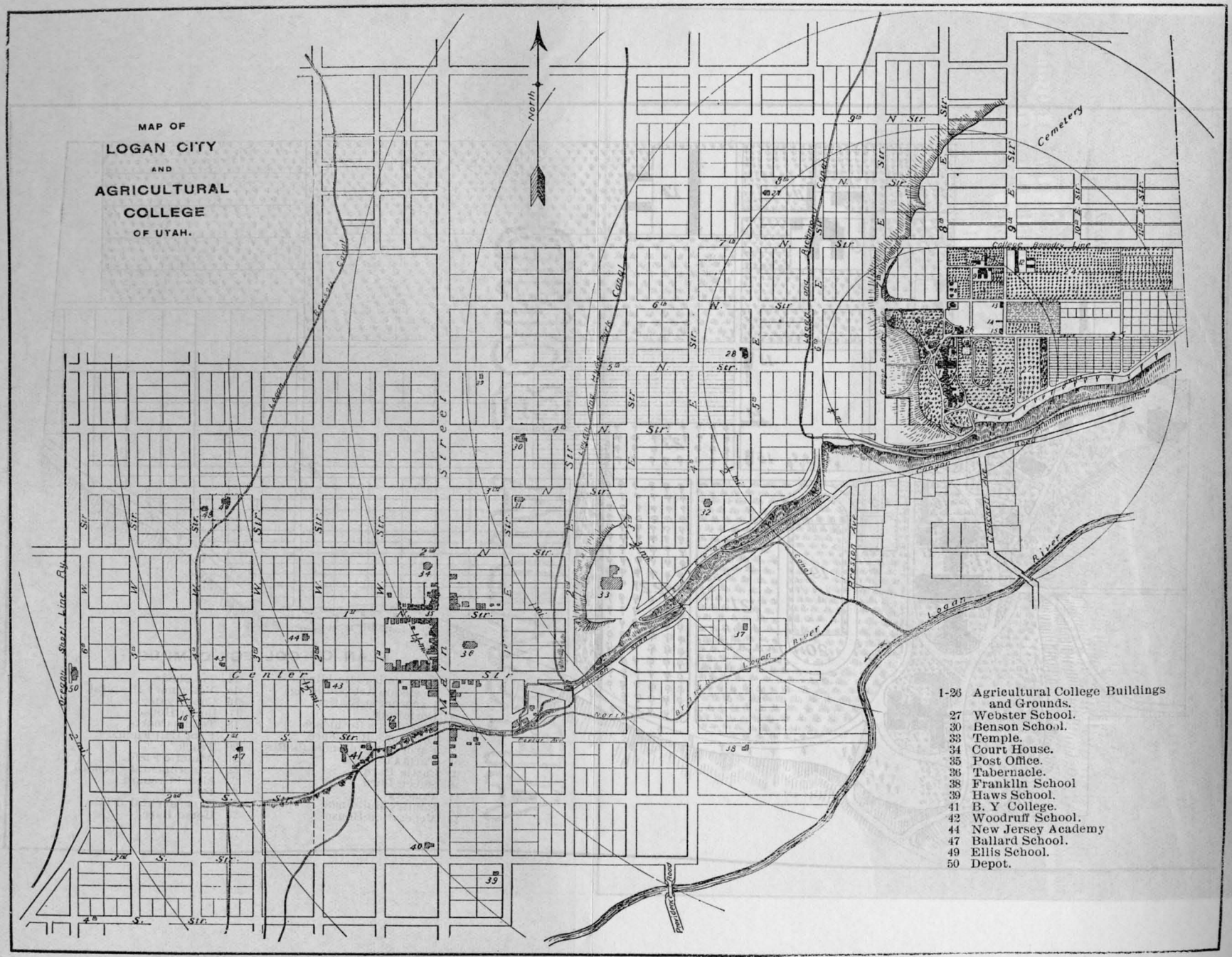


GROUP OF AGRICULTURAL COLLEGE BUILDINGS.



PLAN OF COLLEGE CAMPUS.

1 Main College Building.
2 Mechanic Arts Building.
3 Experiment Station.
4 Dormitory.
5 President's Residence.
6 Director's Residence.
7 Farm Superintendent's Res.
8 Farm Cottages.
9 Cattle Barn.
10 Sheep Barn.
11 Piggery.
12 Poultry Buildings.
13 Vegetation House.
14 Tie Sheds.
15 Veterinary Hospital.
16 Conservatory.
17 Boiler House.
18 Tennis Courts.
19 Foot Ball Field.
20 Track.
21 Athletic Field.
22 Experimental Orchard.
23 Model Orchard.
24 Pastures.
25 Experimental Plats.
26 Horse Barn.


MAP OF
LOGAN CITY
AND
AGRICULTURAL
COLLEGE
OF UTAH.
North
Cemetery
Main Street
Center St.
Logan River
Logan Canal
Preston Ave.
1-26 Agricultural College Buildings and Grounds.
27 Webster School.
30 Benson School.
33 Temple.
34 Court House.
35 Post Office.
36 Tabernacle.
38 Franklin School
39 Haws School.
41 B. Y College.
42 Woodruff School.
44 New Jersey Academy
47 Ballard School.
49 Ellis School.
50 Depot.

1903

JANUARY

S	M	T	W	T	F	S
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FEBRUARY

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1904

JANUARY

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FEBRUARY

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MARCH

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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COLLEGE CALENDAR, 1903-1904.

FIRST TERM.

1903.

September 15, 16, Tuesday and Wednesday:	Entrance examinations. Registration of former students, and new students who are admitted on certificates.
September 17, Thursday:	Instruction begins.
November 26, Thursday:	Thanksgiving recess.
December 18, Friday:	Holiday recess begins.

1904.

January 5, Tuesday:	Instruction resumed. Winter courses begin.
January 30, Saturday:	First term ends. Winter course in Agriculture ends.

SECOND TERM.

February 2, Tuesday:	Second term begins.
March 26, Saturday:	Winter courses in Domestic Arts and in Mechanic Arts end.
April 13, Wednesday:	Arbor Day.
June 5, Sunday:	Baccalaureate sermon.
June 6, Monday:	Class Day.
June 7, Tuesday:	Commencement. Alumni Reunion.
June 8, Wednesday:	Summer vacation begins.

BOARD OF TRUSTEES.

WILLIAM S. McCORNICK ..... Salt Lake City
EMILY S. RICHARDS ..... Salt Lake City
LORENZO HANSEN ..... Logan
ROSINA N. BAGLEY ..... Ogden
JOHN A. McALISTER ..... Logan
GEORGE C. WHITMORE ..... Nephi
EVAN R. OWEN ..... Wellsville

OFFICERS OF THE BOARD OF TRUSTEES.

WILLIAM S. McCORNICK ..... President
PETER W. MAUGHAN .....Secretary
ALLAN M. FLEMING .....Treasurer

STANDING COMMITTEES OF THE BOARD OF TRUSTEES.

Executive Committee.

William S. McCornick, Lorenzo Hansen, and George C. Whitmore.

Finance Committee.

George C. Whitmore, John A. McAlister, and Evan R. Owen.

Committee on Buildings and Improvements.

John A. McAlister, Lorenzo Hansen, and Evan R. Owen.

Committee on Agriculture.

Lorenzo Hansen, George C. Whitmore, and Evan R. Owen.

Committee on Mechanic Arts and Domestic Science and Arts.

Emily S. Richards, John A. McAlister, and Rosina N. Bagley.

Committee on Faculty and Courses of Study.

Rosina N. Bagley, Evan R. Owen, and Emily S. Richards.

Officers of Instruction and Administration

THE COLLEGE FACULTY.

[*Arranged in Groups in the Order of Seniority of Appointment.*]

WILLIAM JASPER KERR, D. Sc.,

PRESIDENT.

JOHN ANDREAS WIDTSOE, M. A., Ph. D.,

DIRECTOR OF EXPERIMENT STATION.

Professor of Chemistry.

DALINDA COTEY, B. S.,

Professor of Domestic Science.

JOSEPH JENSON, S. B.,

Professor of Mechanical Engineering.

GEORGE LEWIS SWENDSEN, B. S.,

Professor of Civil Engineering.

JOHN FRANKLIN ENGLE, LL. B., Ph. D.,

Professor of History and Economics.

WILLARD SAMUEL LANGTON, B. S.,

Professor of Mathematics and Astronomy.

LEWIS ALFORD MERRILL, B. S.,

Professor of Agronomy.

ALFRED HORATIO UPHAM, A. M.,
Professor of English Language and Literature.

WILLIAM NICOL HUTT, B. S. A.,
Professor of Horticulture and Botany.

ELMER DARWIN BALL, M. Sc.,
Professor of Zoology and Entomology.

ROBERT WALLACE CLARK, B. Agr.,
Professor of Animal Industry.

EDWARD WILLIAM ROBINSON,
Professor of Political Science and Transportation.

ALBERT EDGAR WILSON, A. B.,
Professor of Modern Languages.

JOHN A. BEXELL, A. M.,
Professor of Commerce.

Professor of Military Science and Tactics.

PETER A. YODER, M. A., Ph. D.,
Associate Professor of Chemistry.

JAMES DRYDEN,
Assistant Professor of Meteorology and Animal Industry.

WILLIAM PETERSON, B. S.,
Assistant Professor of Geology and Mineralogy.

JOSEPH WILLIAM JENSEN, B. S.,
Assistant Professor of Civil Engineering.

GEORGE PETER CAMPBELL, B. S.,
Assistant Professor of Physics and Athletics.

JOHN THOMAS CAINE, JR., B. S.,
REGISTRAR.
Instructor in English.

SARA GODWIN GOODWIN,
Librarian.

RUTH EVELYN MOENCH,
Instructor in English and Physical Culture.

AUGUST J. HANSEN,
Foreman in Carpentry.

JOHN ALVIN CROCKETT,
Instructor in Dairy Husbandry.

PETER WESTON MAUGHAN,
Secretary.

SAMUEL BAILEY MITTON,
Instructor in Music.

LYDIA HOLMGREN, B. S.,
Instructor in Domestic Science.

EDWARD PARLEY PULLEY, B. S.,
Instructor in Mechanical Engineering.

RHODA BOWEN COOK,
Instructor in Sewing and Millinery.

LOUISE RICHARDS,*
Instructor in Drawing.

WALTER WESLEY McLAUGHLIN, B. S.,
Irrigation Engineer in Experiment Station.

LEANDER A. OSTIEN, B. S., LL. B., Ph. B.,
Instructor in Mathematics and Astronomy.

EDWIN AUGUSTUS WILLIAMS,
Foreman in Forging.

HENRY JEROME STUTTERD,
Instructor in Drawing.

JULIE WINGE OSTIEN, B. S.,
Instructor in History and English.

M. ELIZABETH WYANT, Ph. B.,
Instructor in English Language and Literature.

*On Leave of Absence,

AMANDA HOLMGREN, B. S.,
Instructor in English Language and Literature.

JOHN HASLAM BANKHEAD, B. S.,
Instructor in Commerce.

WILLIAM ARTHUR JENSEN,
Instructor in Stenography and Typewriting.

DAVID MORGAN STEPHENS,
PRESIDENT'S PRIVATE SECRETARY.
Instructor in Stenography.

CHARLES FRANKLIN BROWN, B. S.,
Instructor in Engineering.

ROBERT STEWART, B. S.,
Station Assistant in Chemistry.

MARY SELINA MORRELL,
Assistant in Household Science.

DORA QUAYLE,
Assistant in Sewing.

LOUIE THOMAS,
Assistant in Sewing.

ELIZABETH CHURCH SMITH, B. L.,
Cataloguer in Library.

WILLIAM JARDINE,
Assistant in Agronomy.

FREDERICK CHRISTIAN WANGSGARD,
Assistant in Forging.

FREDERICK ARTHUR DAHLE,
Assistant in Carpentry.

CHARLES BATT,
Superintendent of Steam Heating and Water Works.

RASMUS OLUF LARSEN,
Head Janitor.

THE COLLEGE COUNCIL.

THE PRESIDENT, *Chairman.*
THE REGISTRAR, *ex officio.*
PROFESSOR JOHN ANDREAS WIDTSOE.
PROFESSOR DALINDA COTEY.
PROFESSOR JOSEPH JENSON.
PROFESSOR GEORGE LEWIS SWENDSEN.
PROFESSOR JOHN FRANKLIN ENGLE.
PROFESSOR WILLARD SAMUEL LANGTON.
PROFESSOR LEWIS ALFORD MERRILL.
PROFESSOR ALFRED HORATIO UPHAM.
PROFESSOR WILLIAM NICOL HUTT.
PROFESSOR ELMER DARWIN BALL.
PROFESSOR ROBERT WALLACE CLARK.
PROFESSOR EDWARD WILLIAM ROBINSON.
PROFESSOR ALBERT EDGAR WILSON.
PROFESSOR JOHN A. BEXELL.
ASSOCIATE PROFESSOR PETER A. YODER.
ASSISTANT PROFESSOR JAMES DRYDEN.
ASSISTANT PROFESSOR WILLIAM PETERSON.
ASSISTANT PROFESSOR JOSEPH WILLIAM JENSEN
ASSISTANT PROFESSOR GEORGE PETER CAMPBELL.

EXPERIMENT STATION STAFF.

WILLIAM JASPER KERR,
President of the College.

JOHN ANDREAS WIDTSOE,
Director and Chemist.

JAMES DRYDEN,
Meteorologist and Poultry Manager.

LEWIS ALFORD MERRILL,
Agronomist.

WILLIAM NICOL HUTT,
Horticulturist.

ELMER DARWIN BALL,
Entomologist.

ROBERT WALLACE CLARK,
Animal Industry.

WALTER WESLEY McLAUGHLIN,
Irrigation Engineer.

PETER A. YODER,
Associate Chemist.

JOHN ALVIN CROCKETT,
Assistant Dairyman.

ROBERT STEWART,
Assistant Chemist.

WILLIAM JARDINE,
Assistant Agronomist.

FOREMEN.

JOSEPH B. NELSON,
Agronomy.

JOHN HOPKINS,
Poultry.

HENRY WALLACE CROCKETT,
Horticulture.

FRED BLATTER,
Animal Industry.

STANDING COMMITTEES.

1903-1904.

The President of the College is *ex-officio* a member of all standing committees.

THE COLLEGE COUNCIL.

1. *Agriculture.*—Professors Merrill, Ball, Yoder.

2. *Domestic Science.*—Professors Cotey, Widtsoe, Clark.

3. *Commerce.*—Professors Bexell, Robinson, Engle.

4. *Engineering.*—Professors Joseph Jenson, Langton, Campbell.

5. *General Science.*—Professors Yoder, Upham, Hutt.

6. *Scholarship and Graduation.*—Professors Ball, Merrill, J. W. Jensen.

7. *Farmers' Institutes.*—Professors Widtsoe, Cotey, Joseph Jenson.

THE COLLEGE FACULTY.

1. *College Publications.*—Professors Upham, Dryden, Miss Wyant.

2. *Amusements and Public Entertainments.*—Professors Robinson, Wilson, Mr. Stutterd.

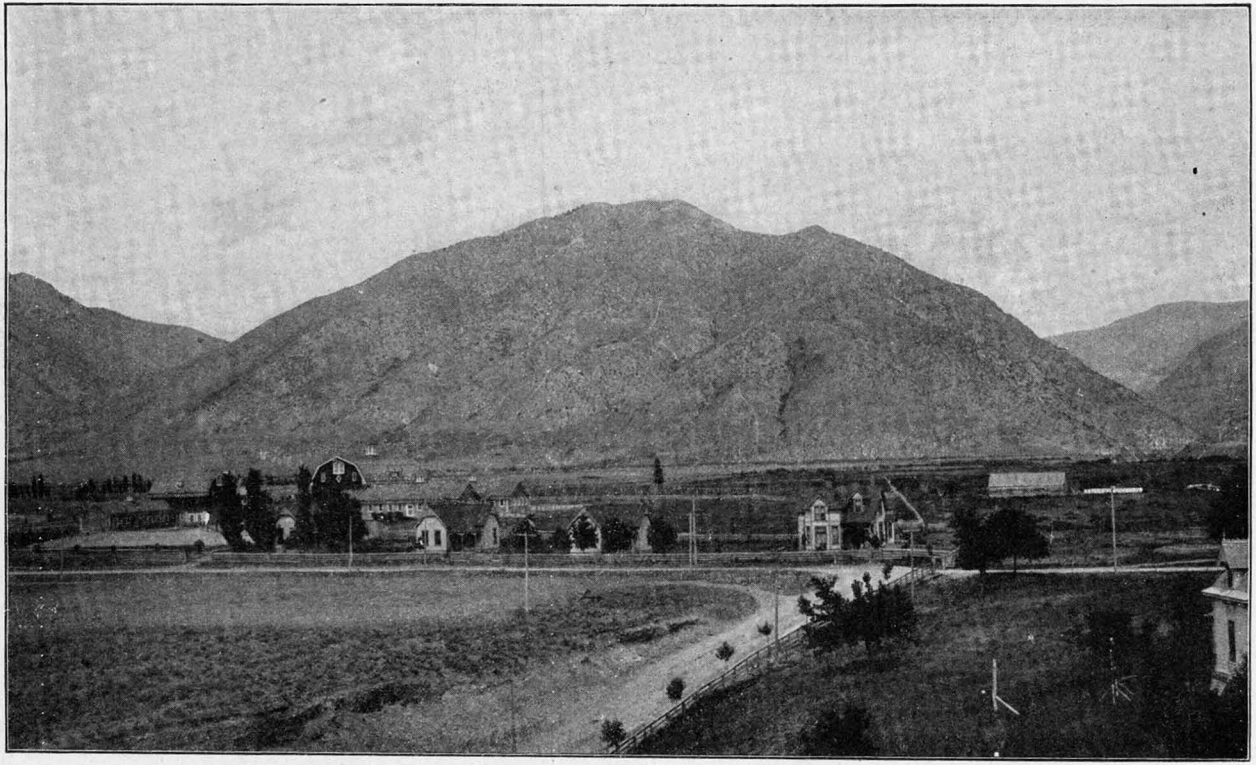
3. *Students' Affairs.*—Mr. Caine, Mr. Ostien, Miss Lydia Holmgren.

4. *Student Organizations.*—Professors Engle, Hutt, Miss Moench.

5. *Attendance.*—Professors Wilson, Peterson, J. W. Jensen.

6. *Athletics.*—Professors Langton, Campbell, Mr. Ostien Mr. McLaughlin.

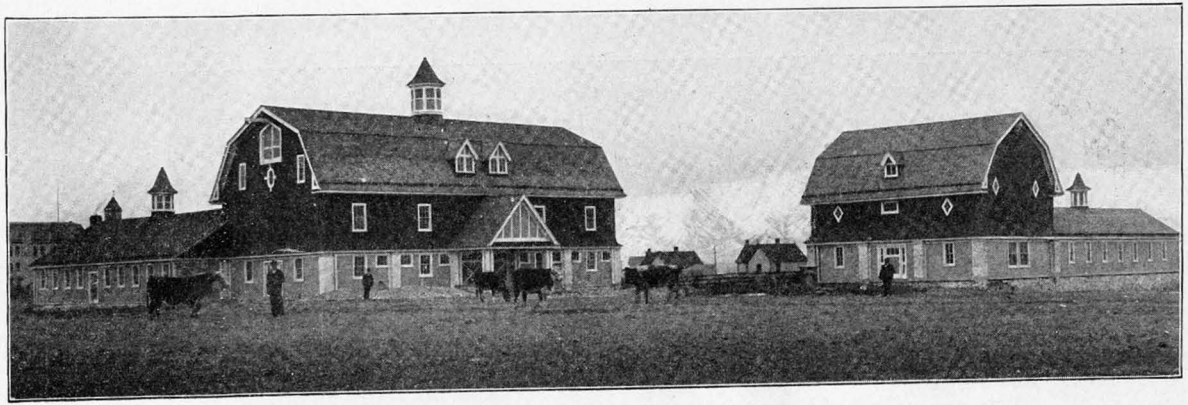
7. *Preparatory.*—Professor Peterson, Mr. Caine, Mrs. Ostien.



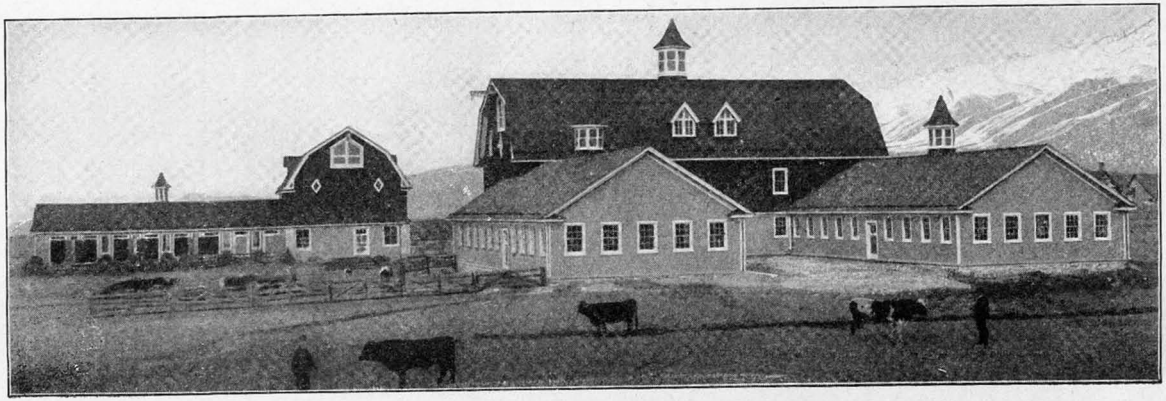
SECTION OF COLLEGE CAMPUS AND BUILDINGS.

Horse Barn, Conservatory, Veterinary Hospital.

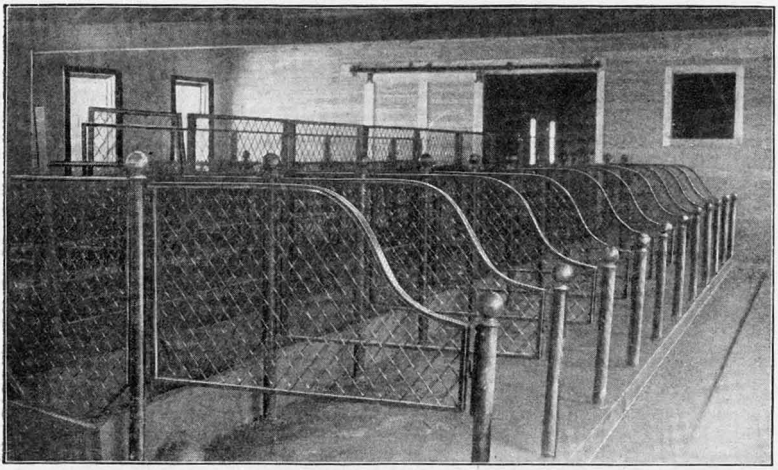
EXPERIMENT STATION BUILDING.



College Sheep Barn and Cattle Barn, From North-East.



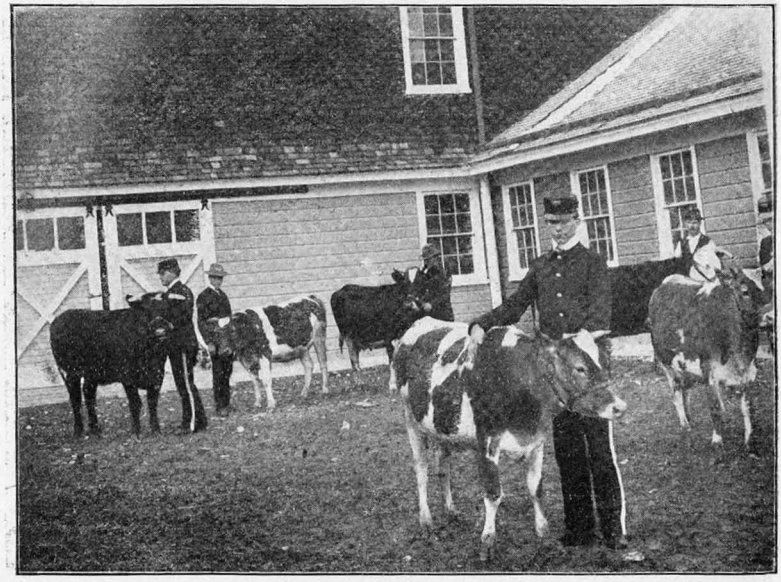
Sheep Barn and Cattle Barn, From South-West.



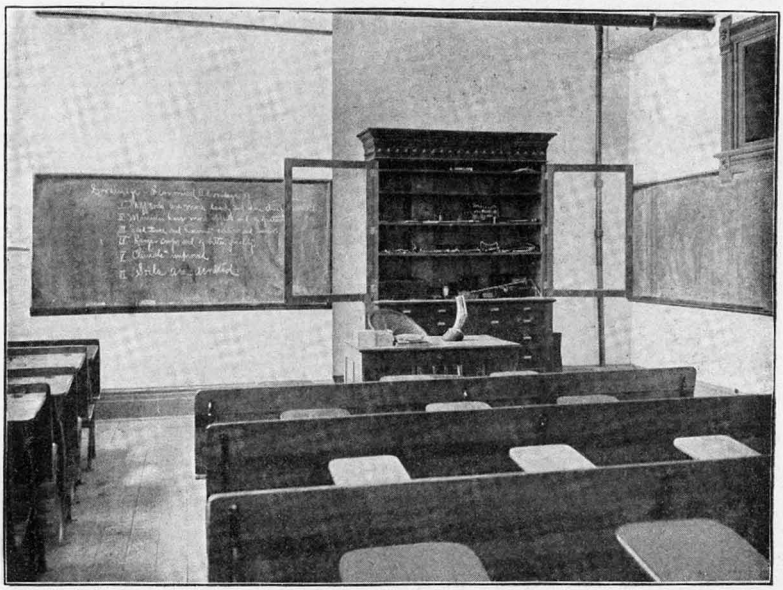
STALLS IN CATTLE BARN.

VETERINARY LABORATORY.

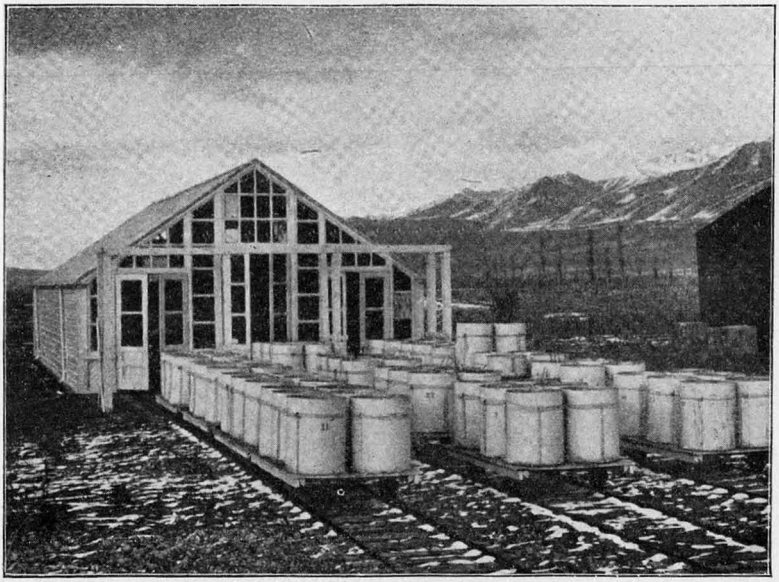
CLASS IN STOCK-JUDGING.



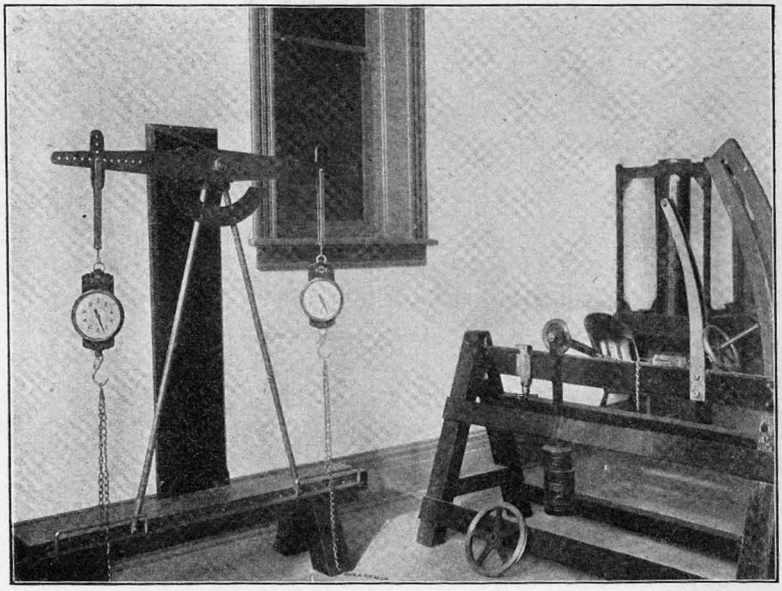
COLLEGE PURE-BRED CATTLE—SHORTHORN, GUERNSEY, HOLSTEIN, HEREFORD.



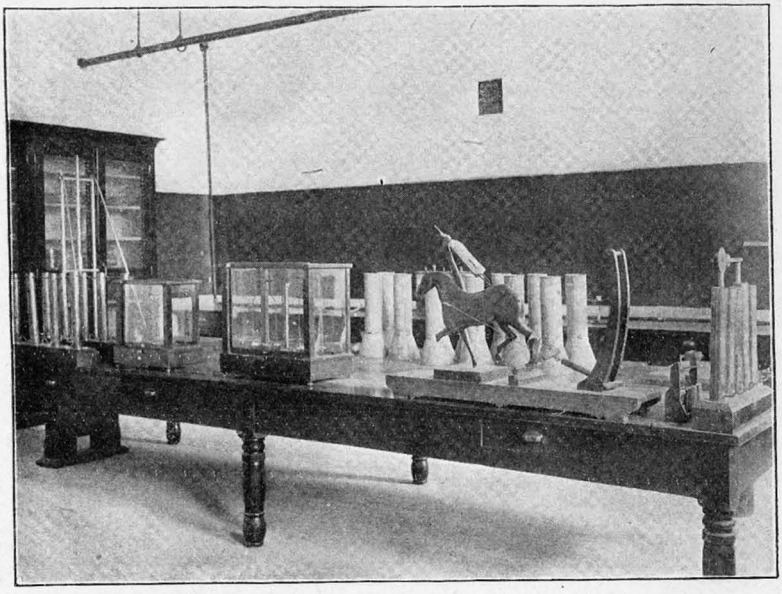
VETERINARY SCIENCE CLASS ROOM.



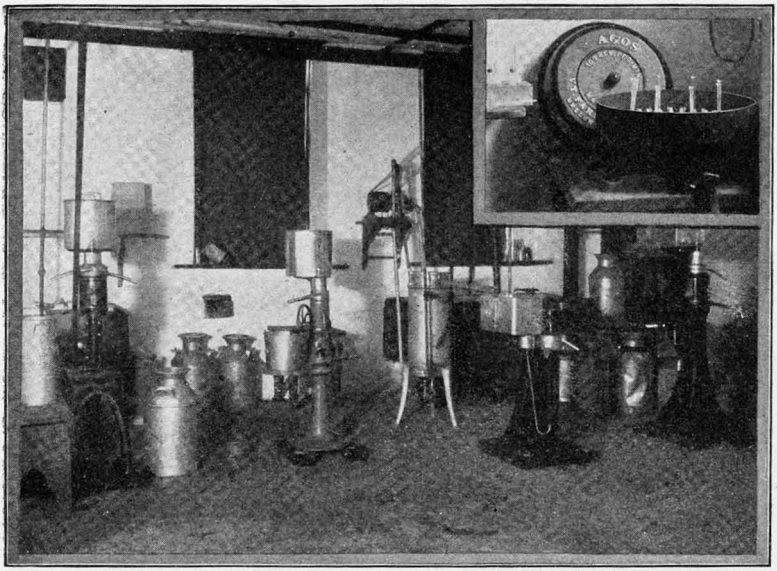
VEGETATION HOUSE FOR EXPERIMENTAL WORK IN AGRONOMY AND IRRIGATION.



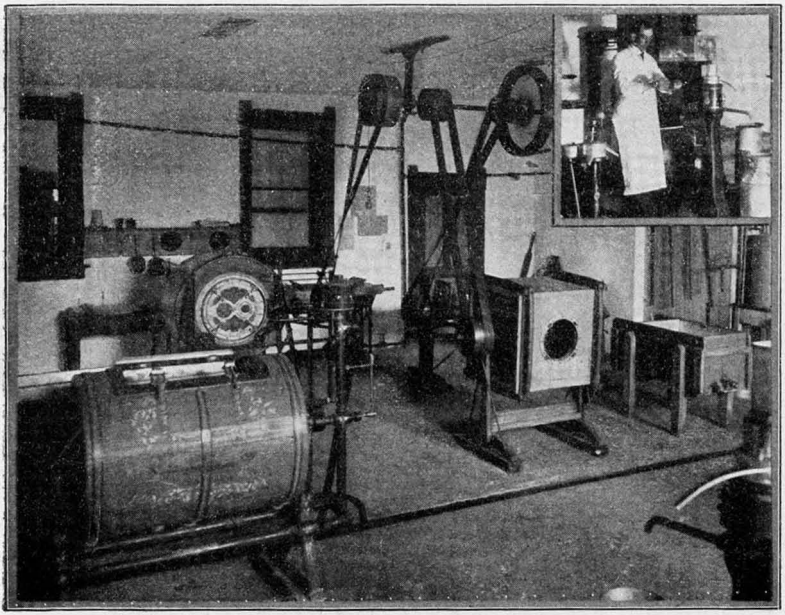
AGRICULTURAL PHYSICS LABORATORY.



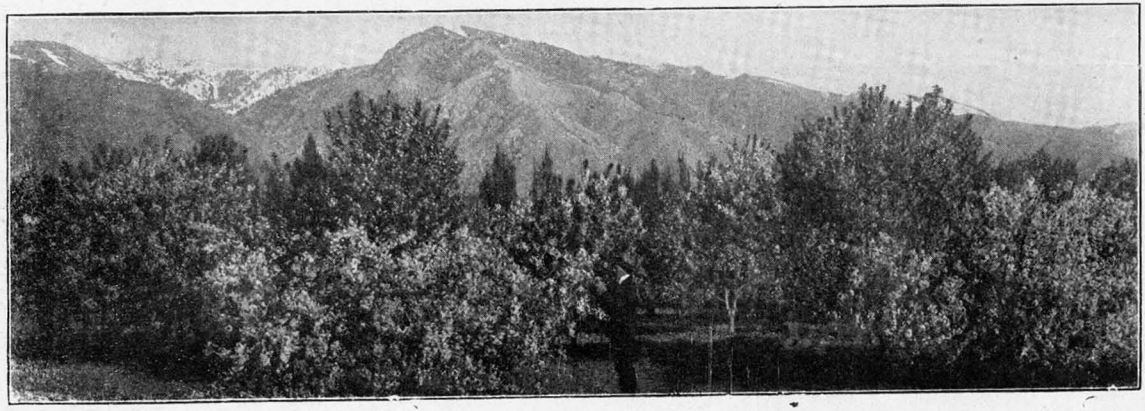
AGRICULTURAL PHYSICS LABORATORY.



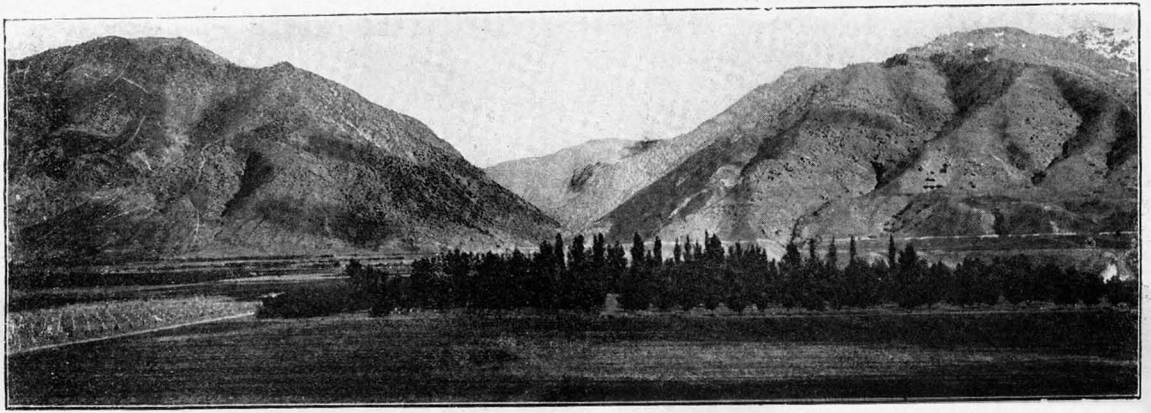
DAIRY—SHOWING SEPARATORS AND BABCOCK TEST.



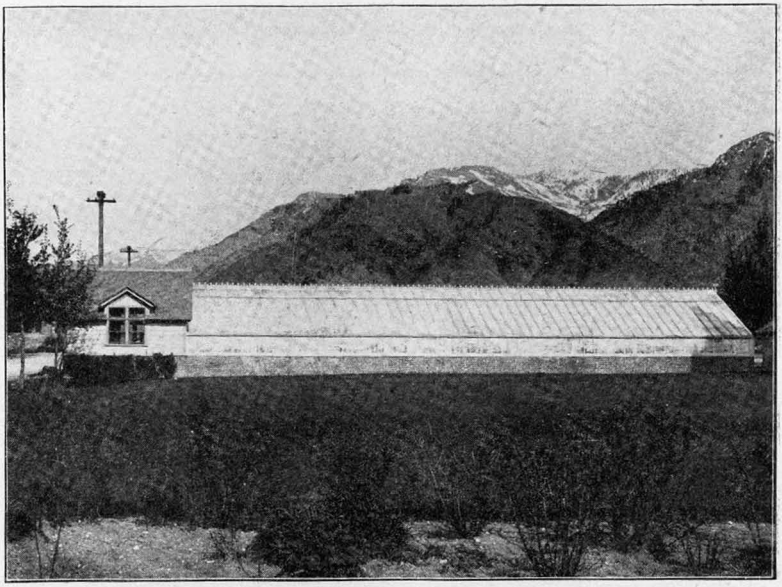
SECTION OF COLLEGE DAIRY.



View in College Orchard.



Orchard.

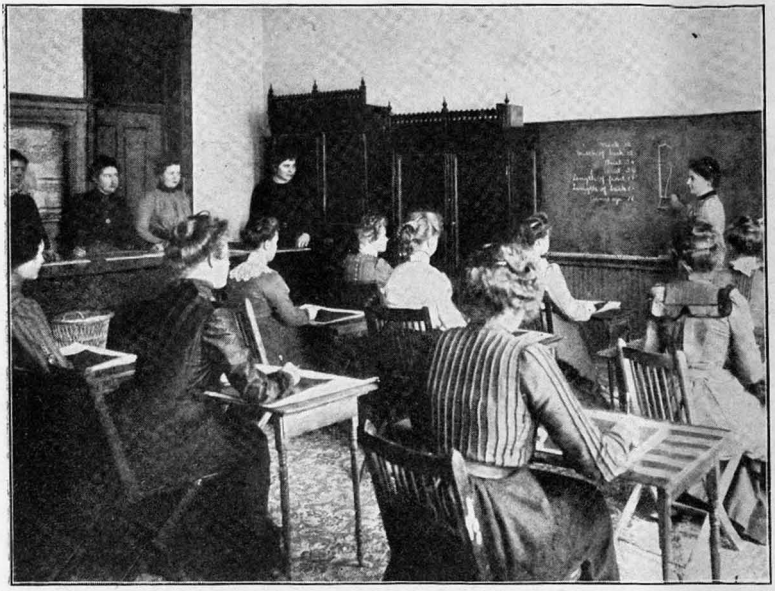


CONSERVATORY.

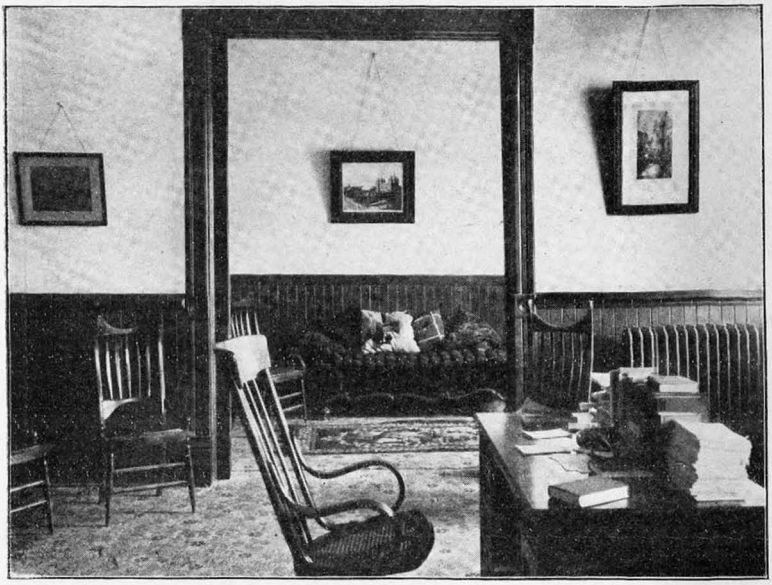
LESSON IN PRUNING, DEPARTMENT OF HORTICULTURE.

VIEW IN CONSERVATORY.

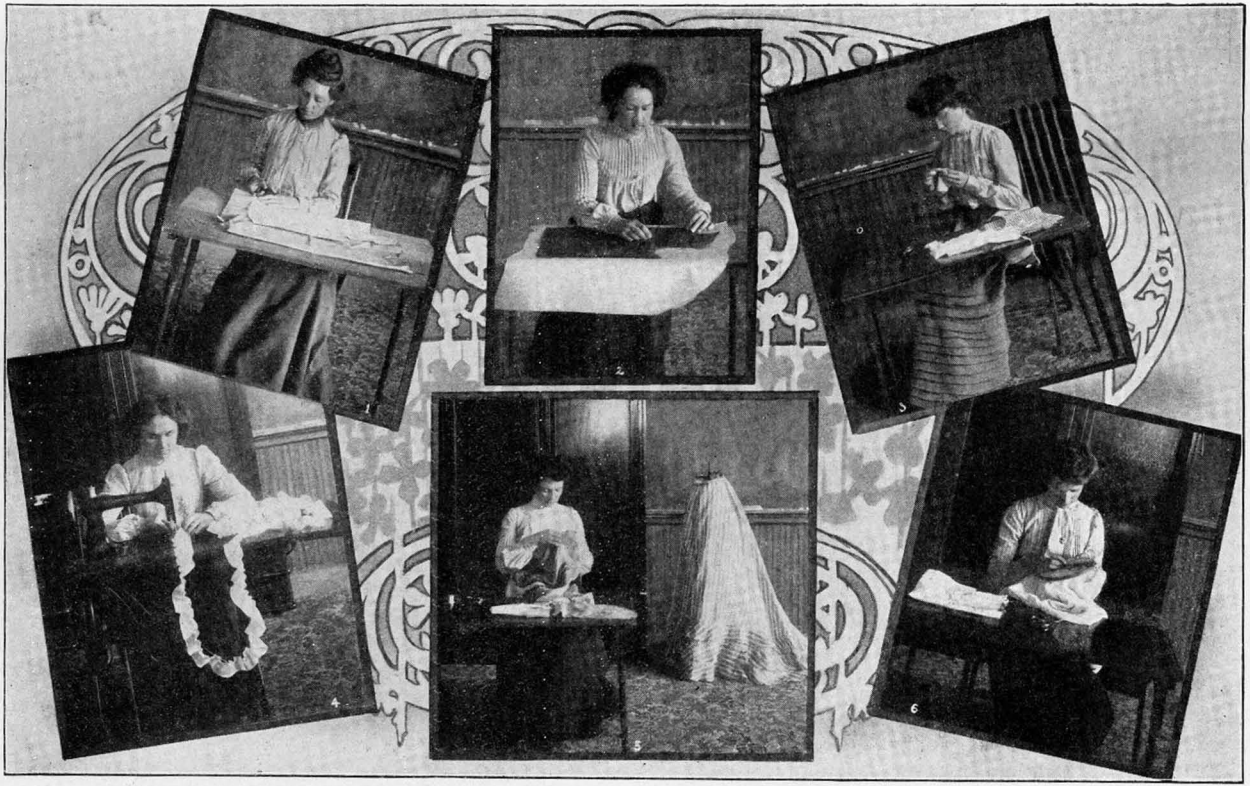
View in Conservatory.



View in Sewing Rooms.

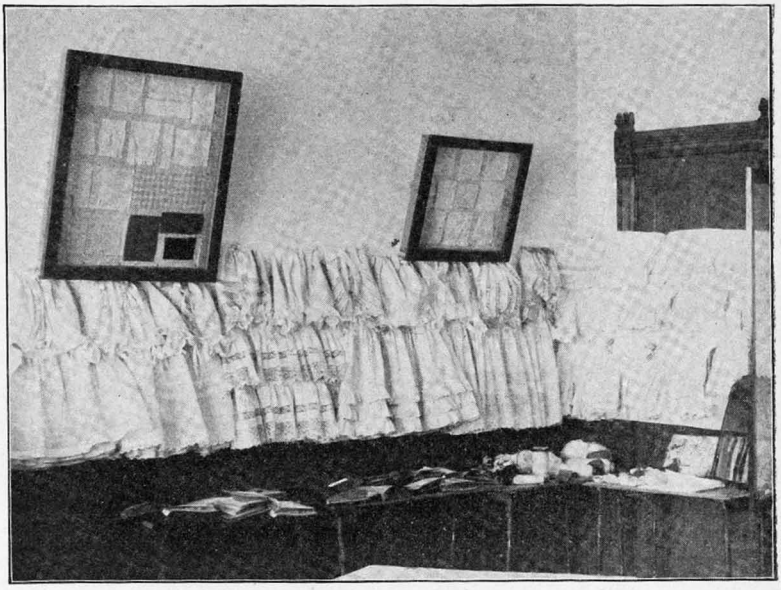


Offices, Department of Domestic Science and Arts.

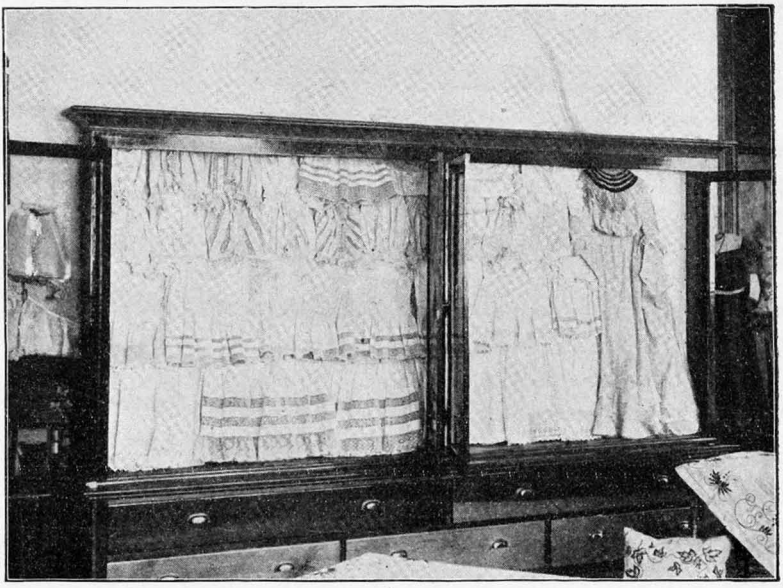


VIEWS IN COLLEGE SEWING ROOMS.

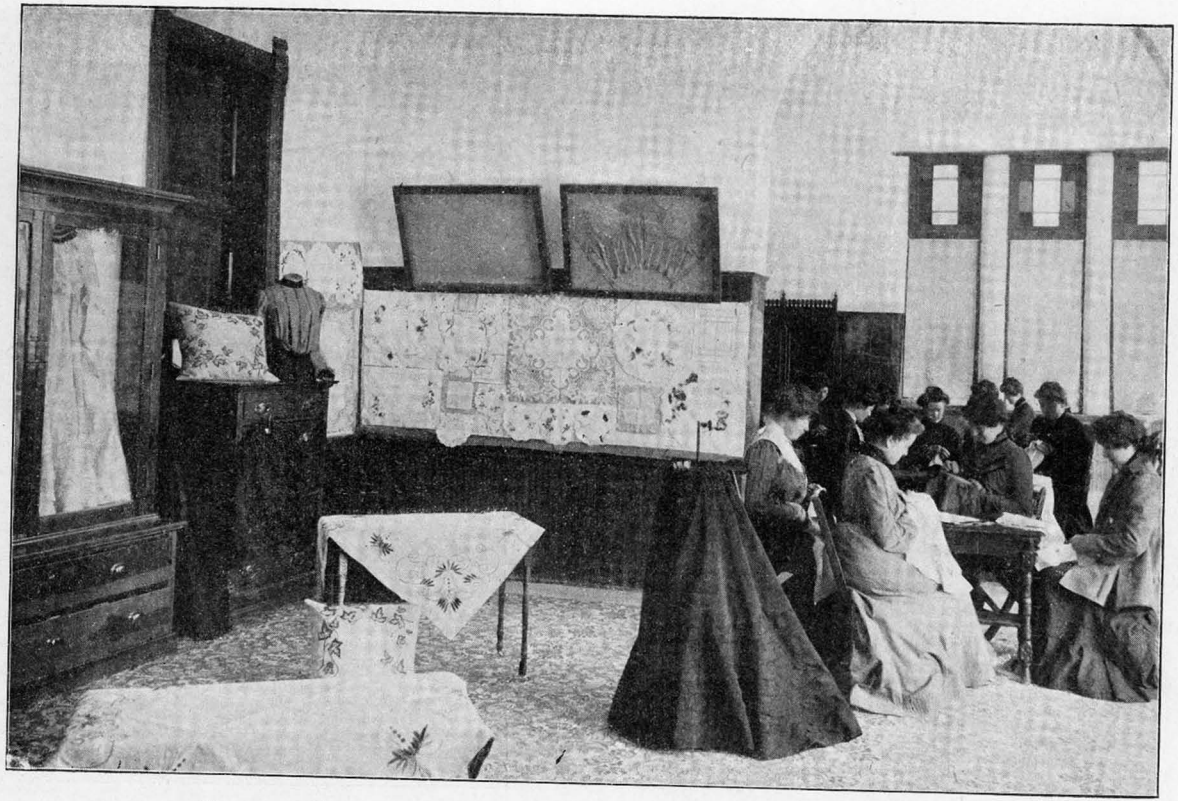
1. CUTTING. 2. DRAUGHTING. 3. PIECE WORK. 4. MACHINE WORK. 5. DRESSMAKING. 6. FANCY WORK.



SAMPLES OF STUDENTS' WORK IN SEWING.

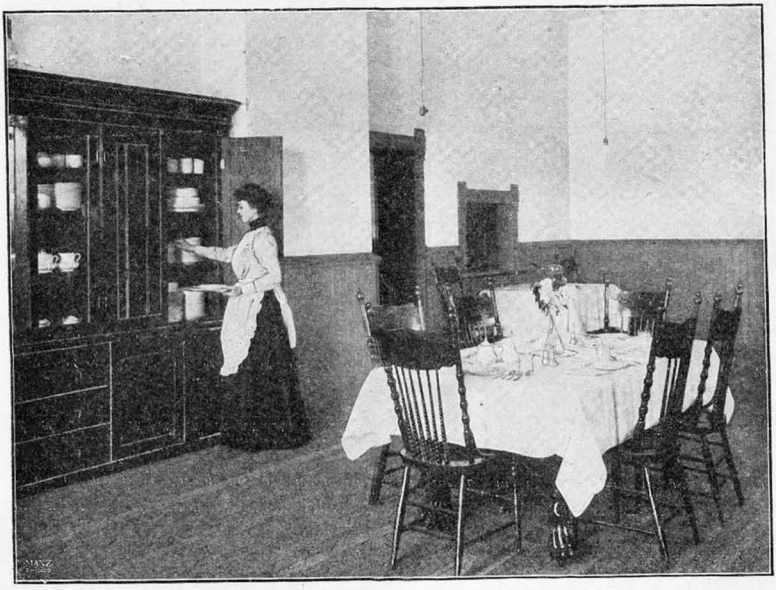


SAMPLES OF STUDENTS' WORK IN SEWING.

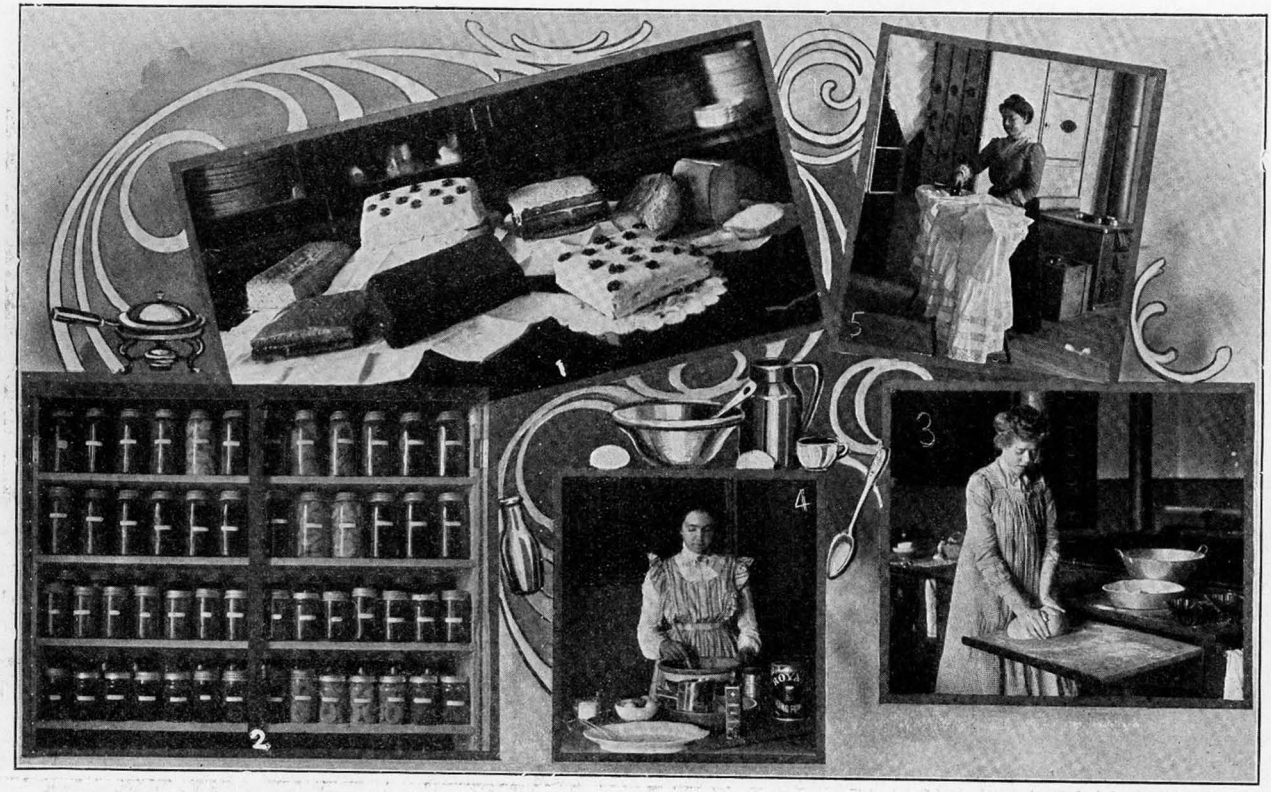


College Sewing Rooms, with Samples of Students' Work.

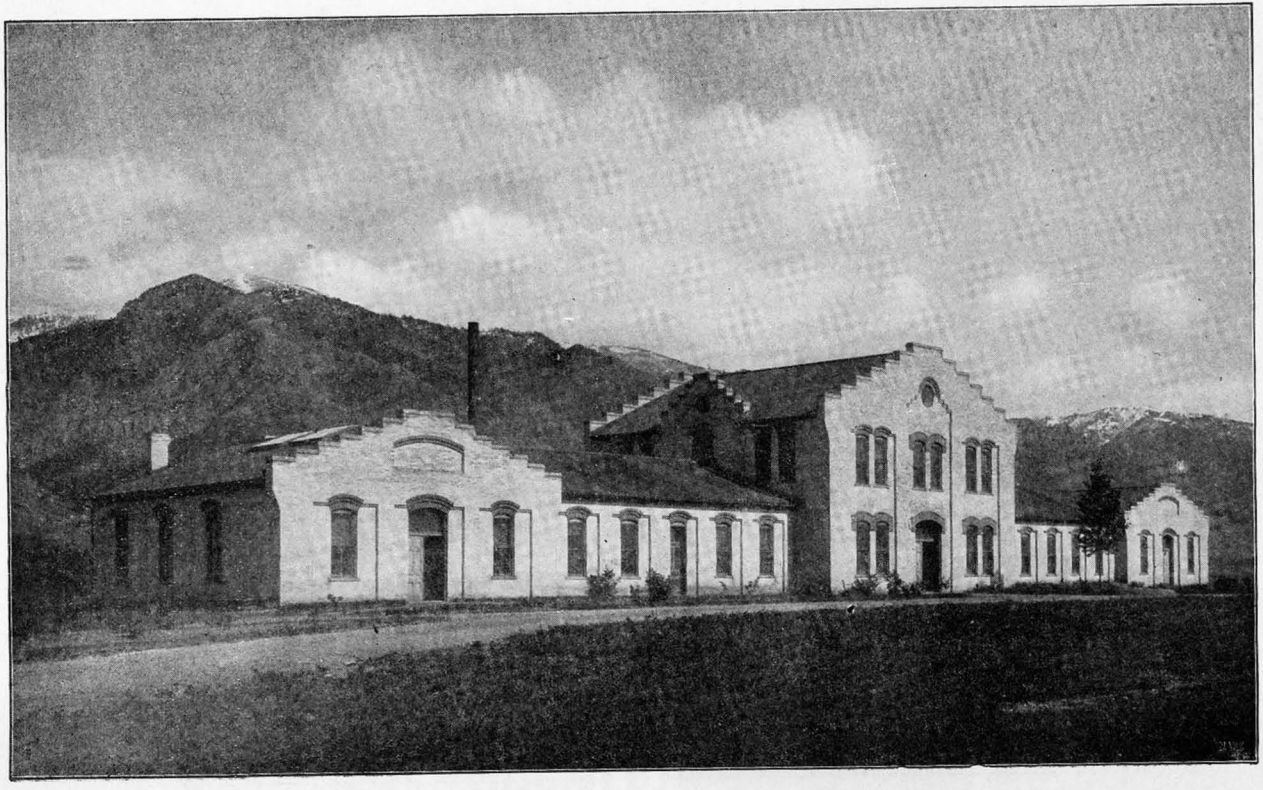
View in College Kitchen.



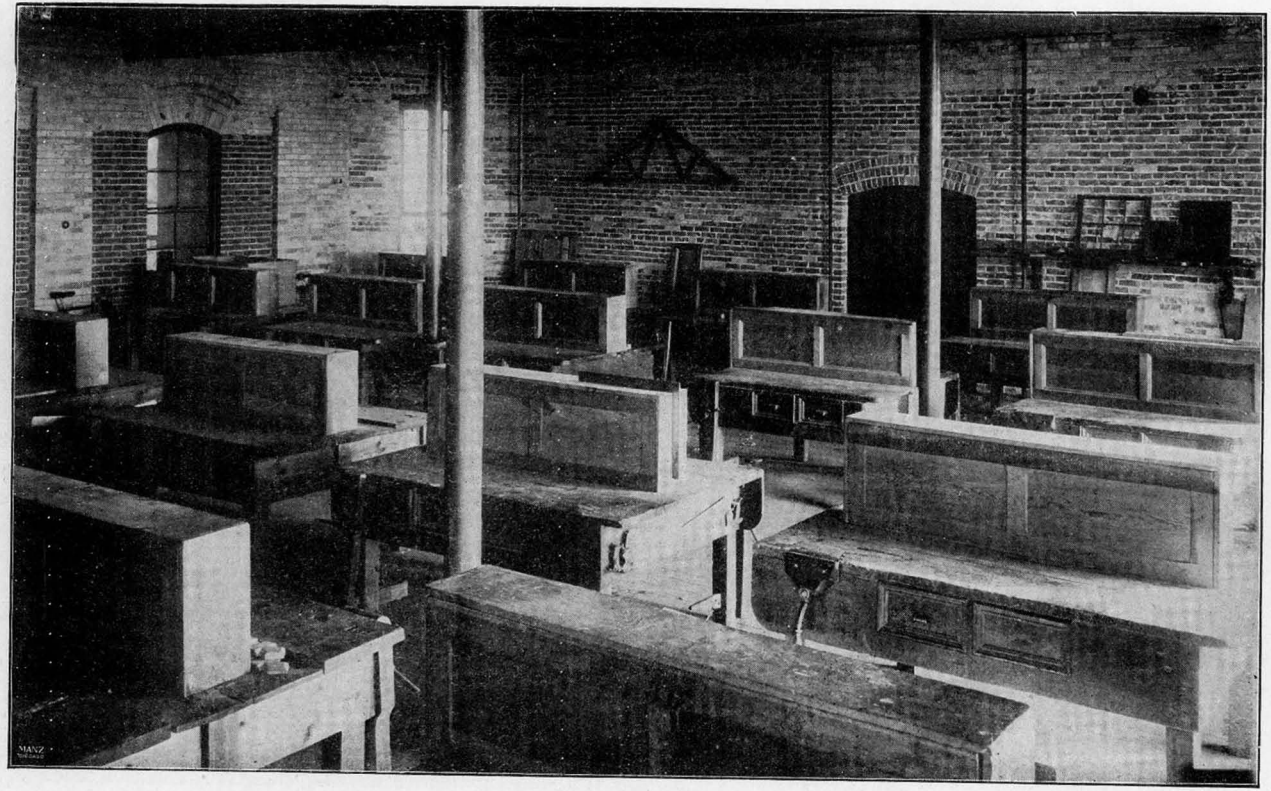
Corner of College Dining Room.



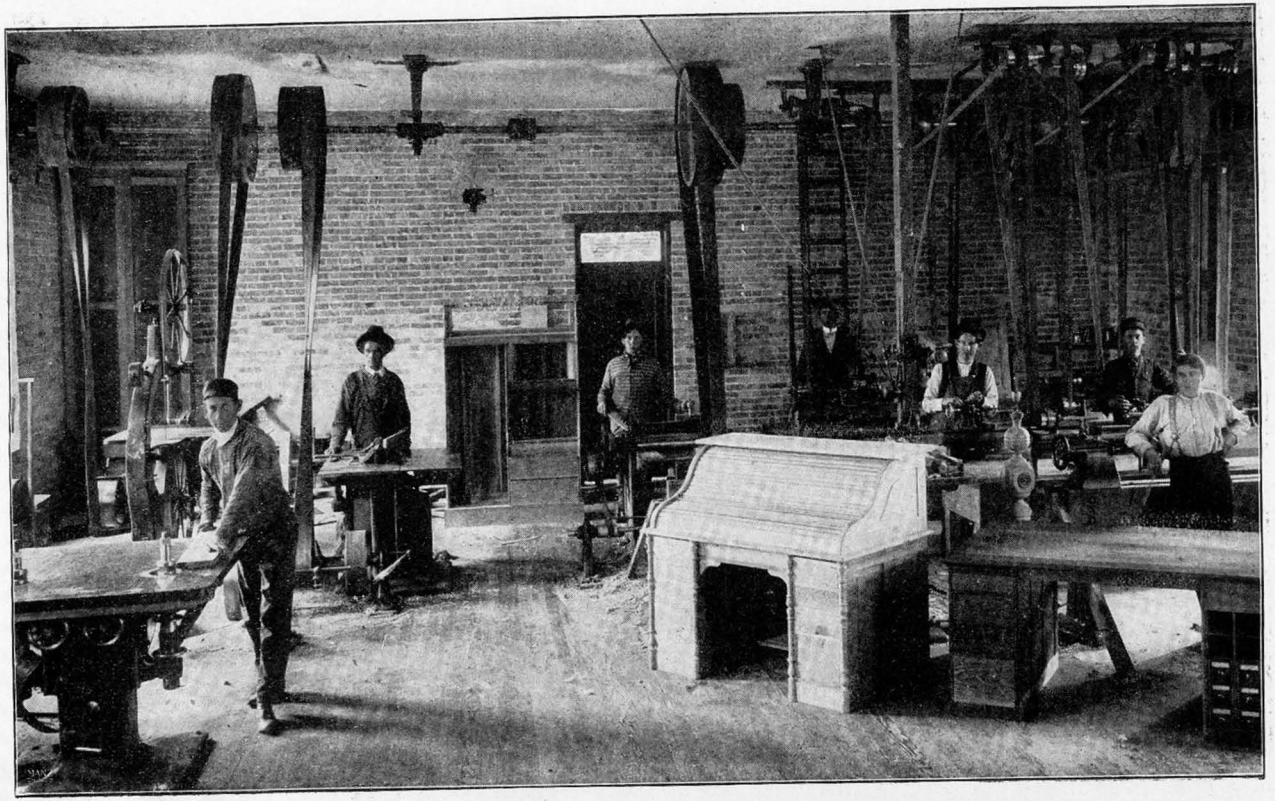
1. Samples of Cake and Bread Made by Students. 2. Fruit Bottled by Students. 3. Student Making Bread. 4. Making Pie. 5. Laundering a skirt.



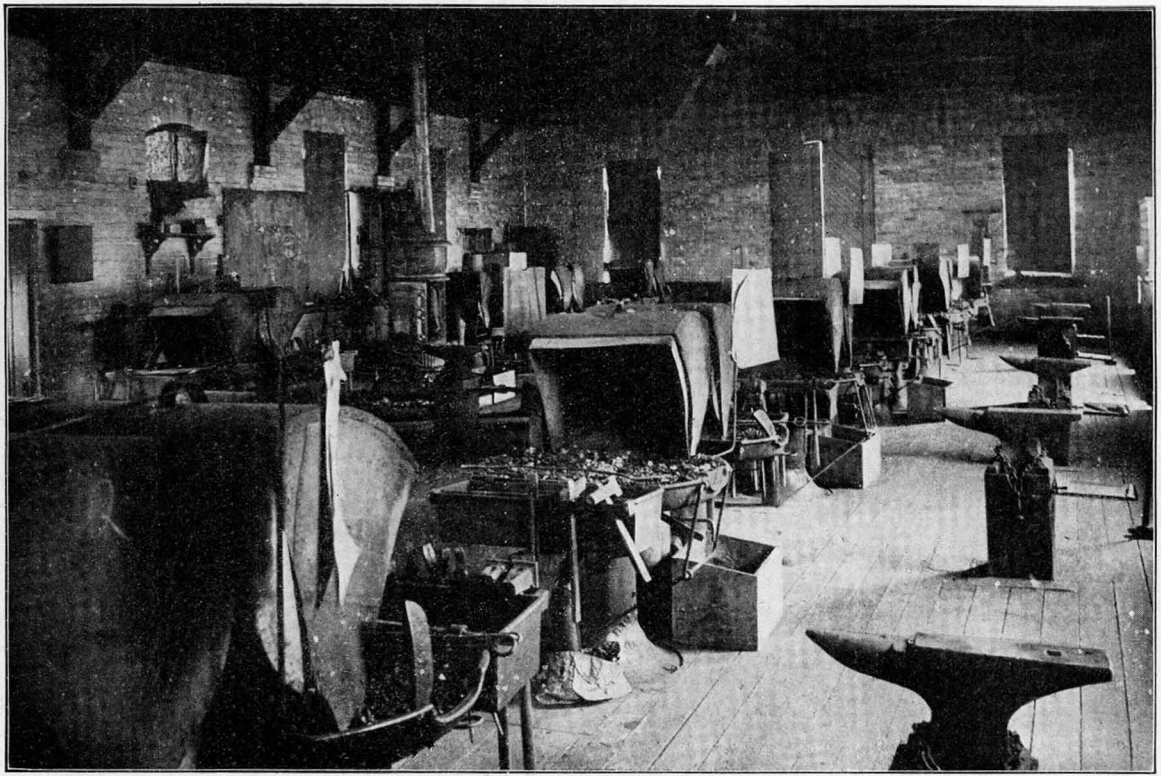
MECHANIC ARTS BUILDING.



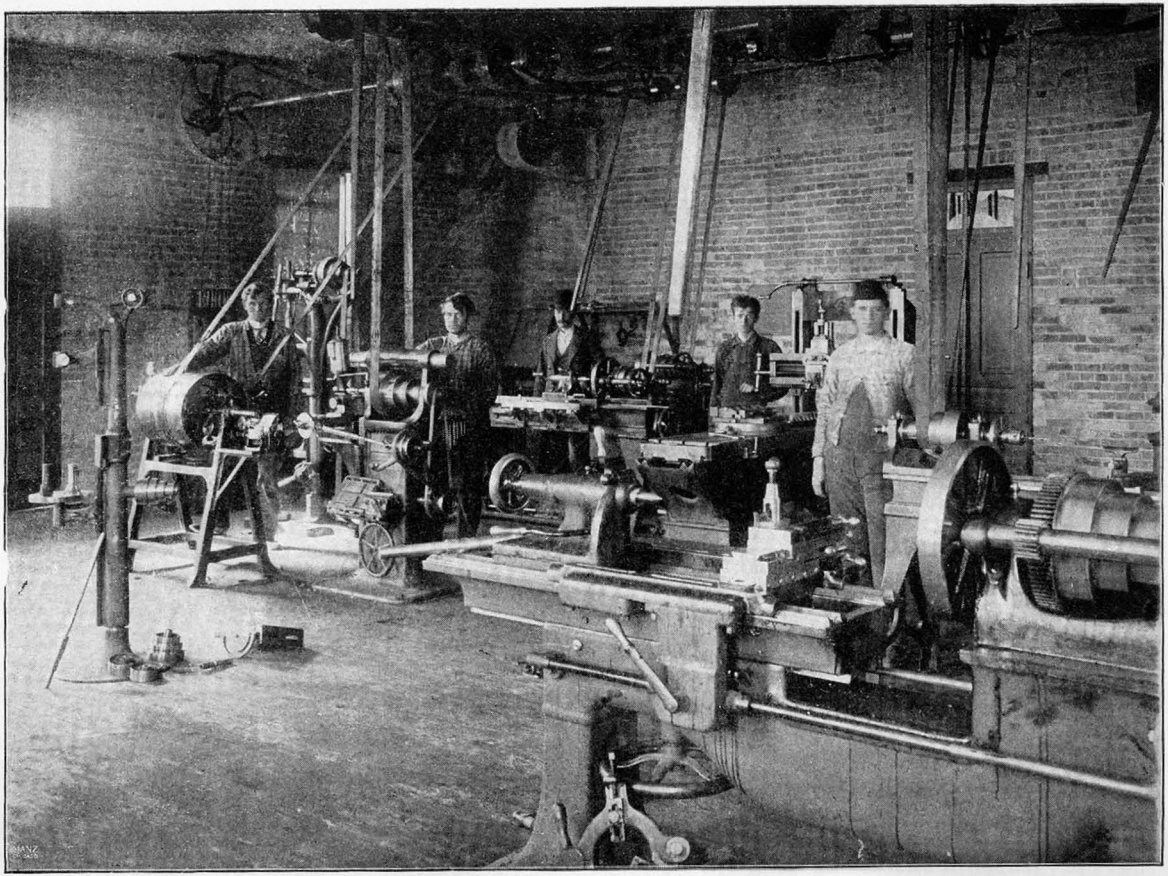
CARPENTER SHOP.



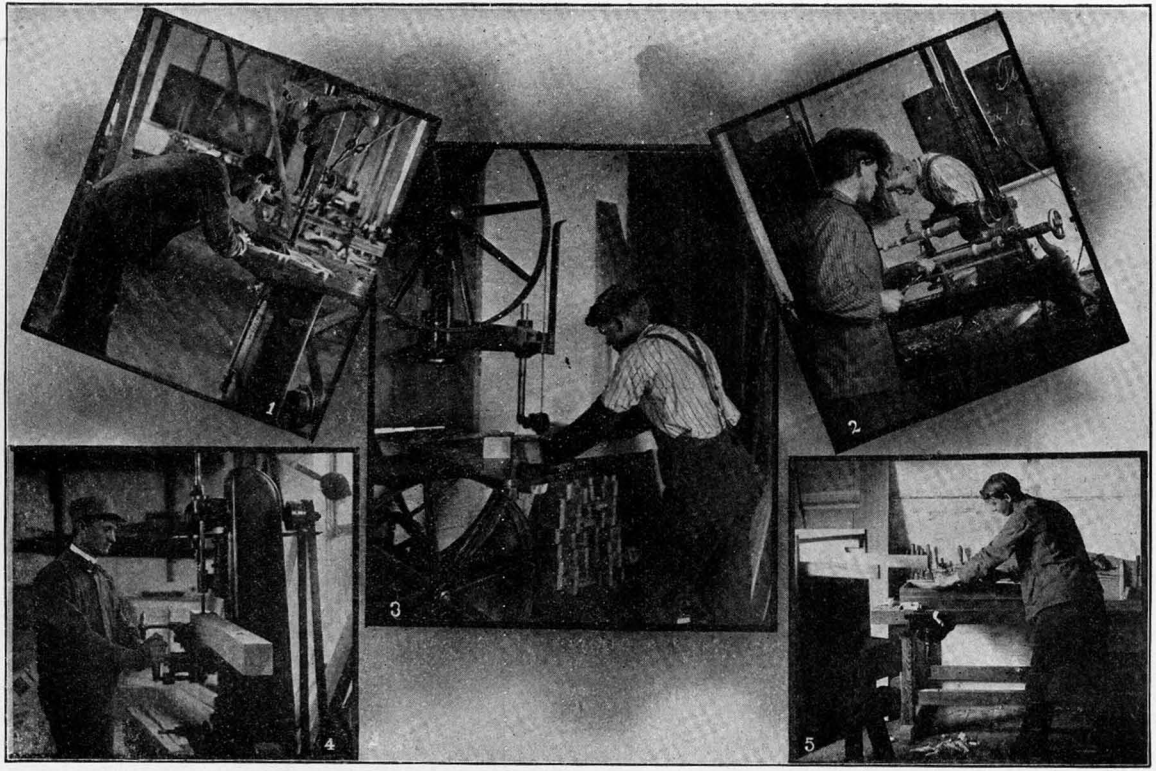
WOOD-WORKING MACHINE ROOM.



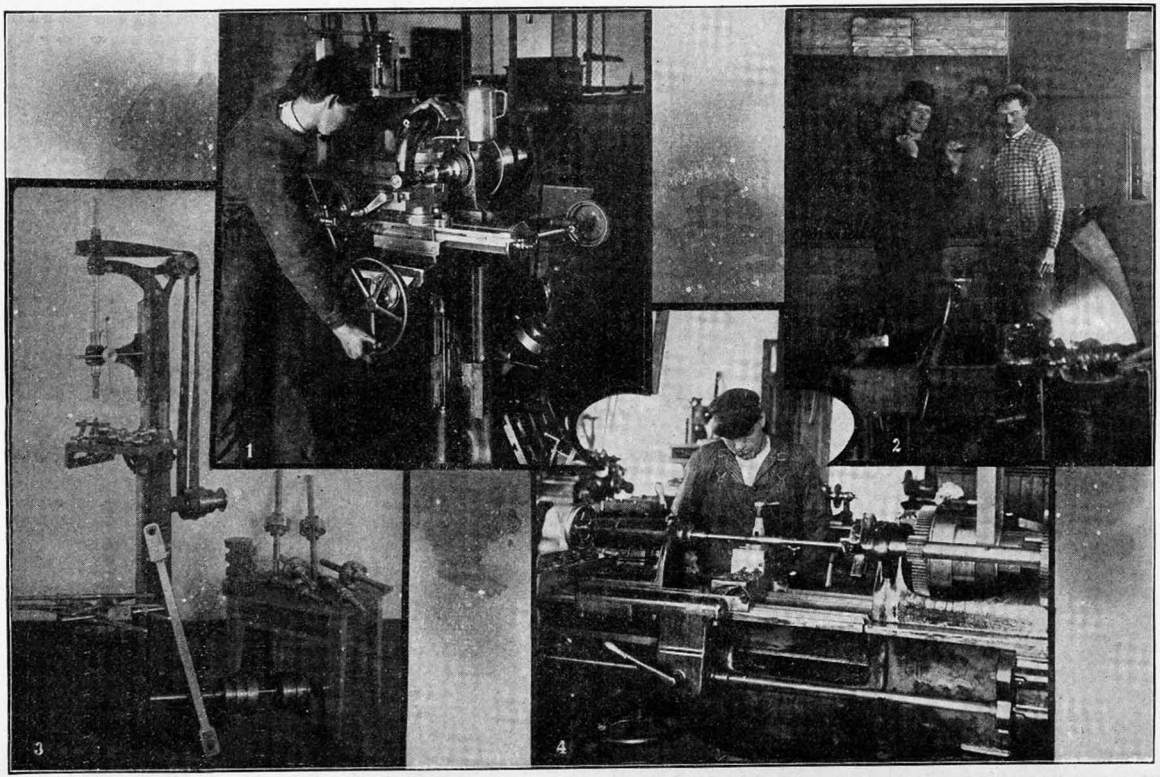
FORGE ROOM.



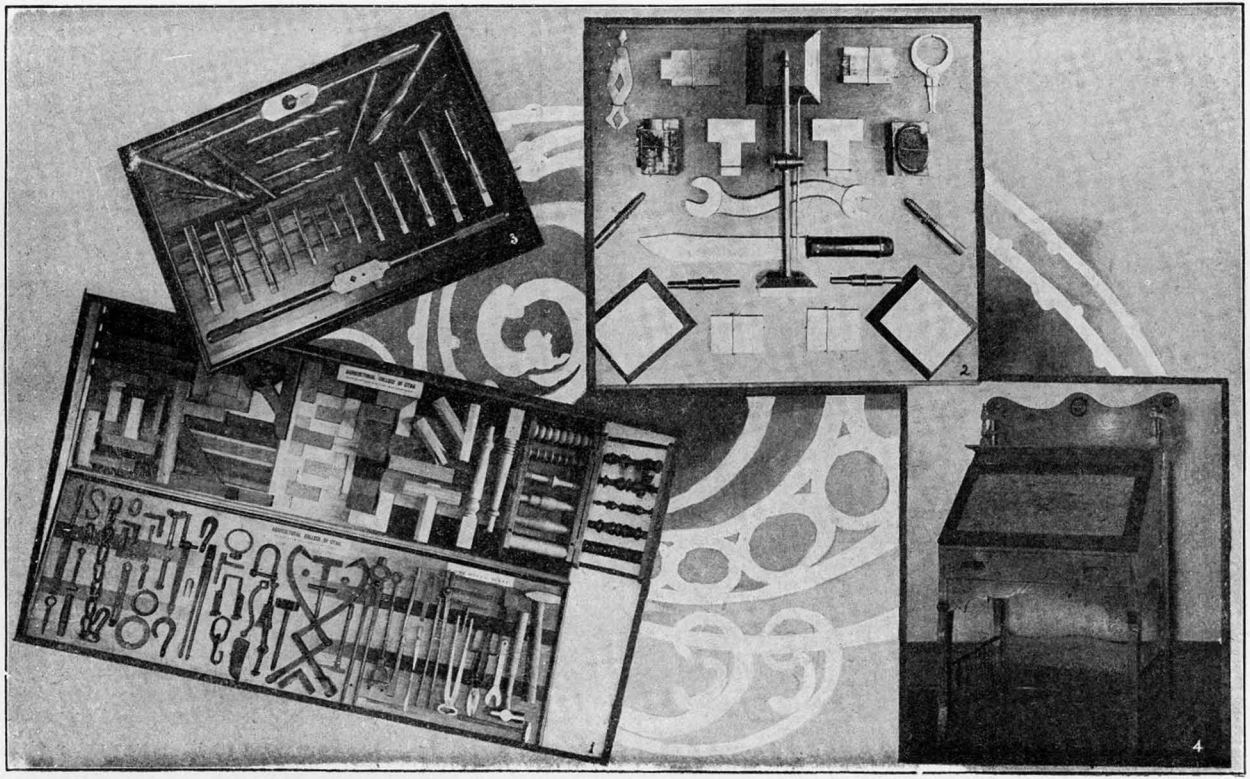
IRON-WORKING MACHINE ROOM.



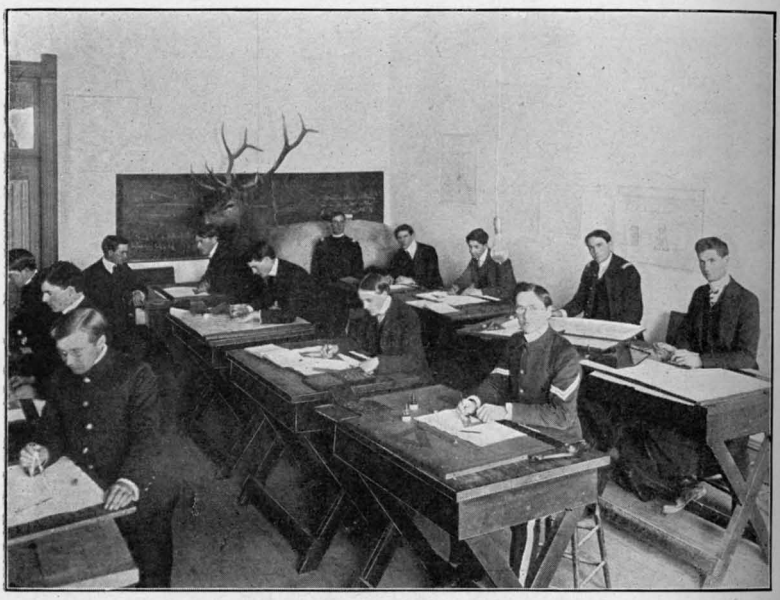
1. Student at Jig Saw. 2. Students at Turning Lathes.
3. Student at Band Saw. 4. Student at Power Mortiser. 5. Student at Bench.



1. Student at Universal Milling Machine. 2. Students at Forge. 3 Exercises of Work in Machine Shop. 4. Student at Large Engine Lathe.

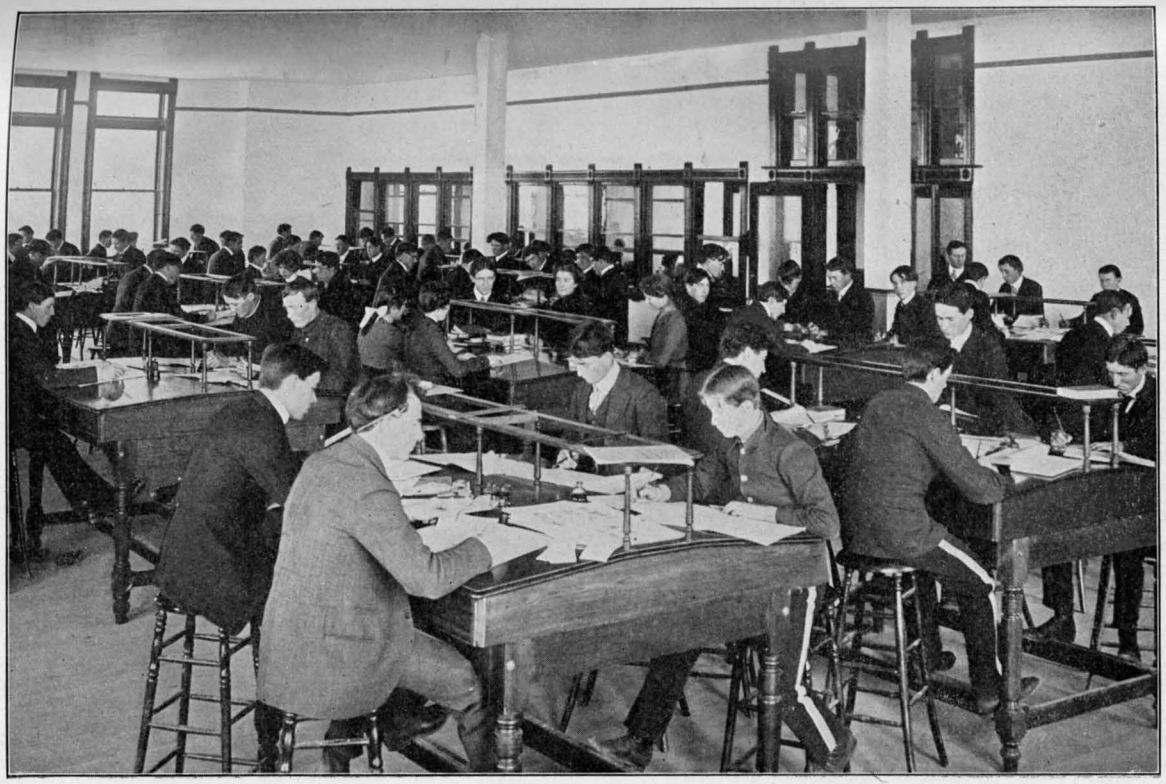


Sample Exercises of Students in Mechanic Arts.

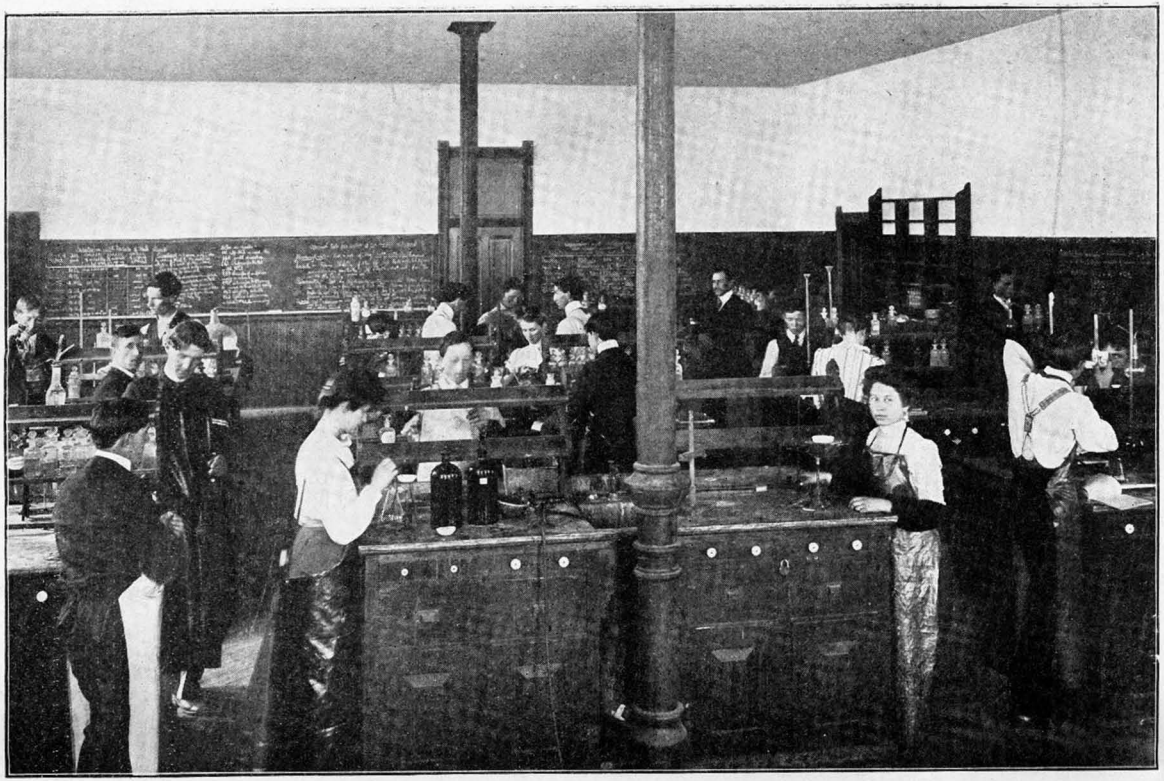


CIVIL ENGINEERING—DRAUGHTING ROOM.

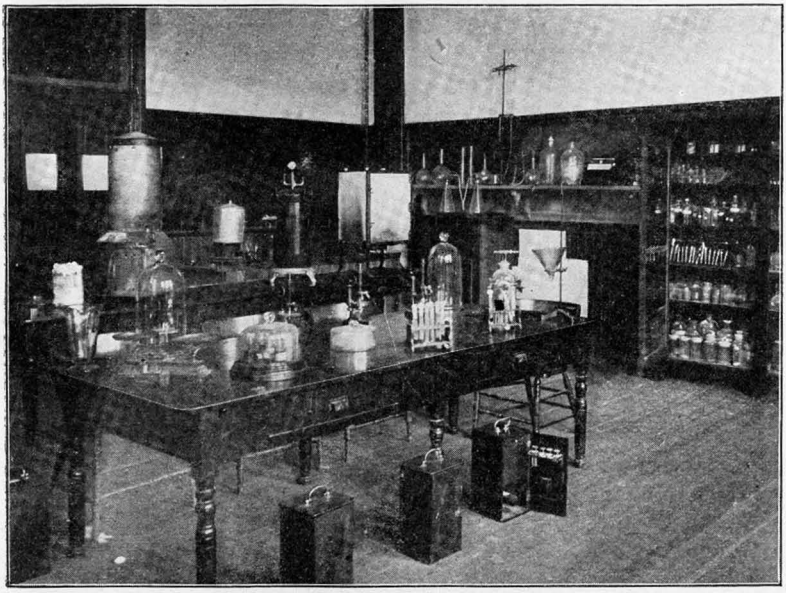
ENGINEERING STUDENTS MEASURING FLOW OF WATER.



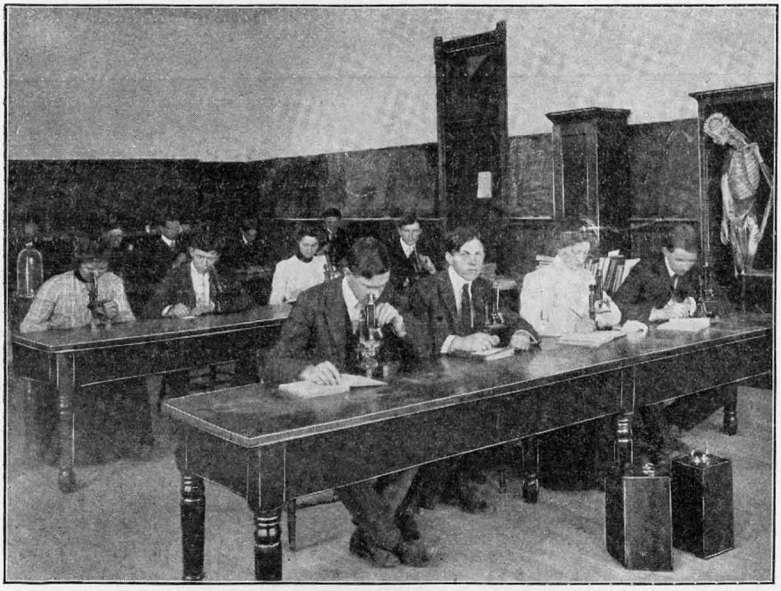
ACCOUNTING ROOM.



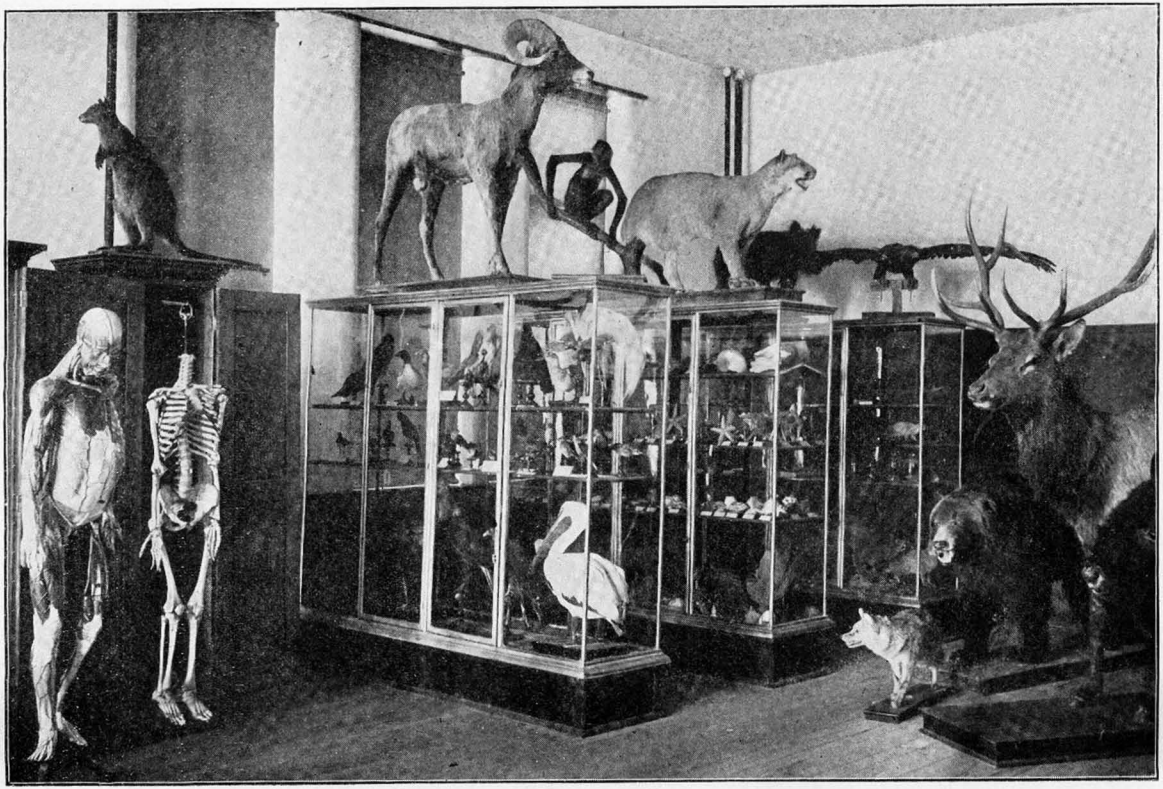
CHEMICAL LABORATORY.



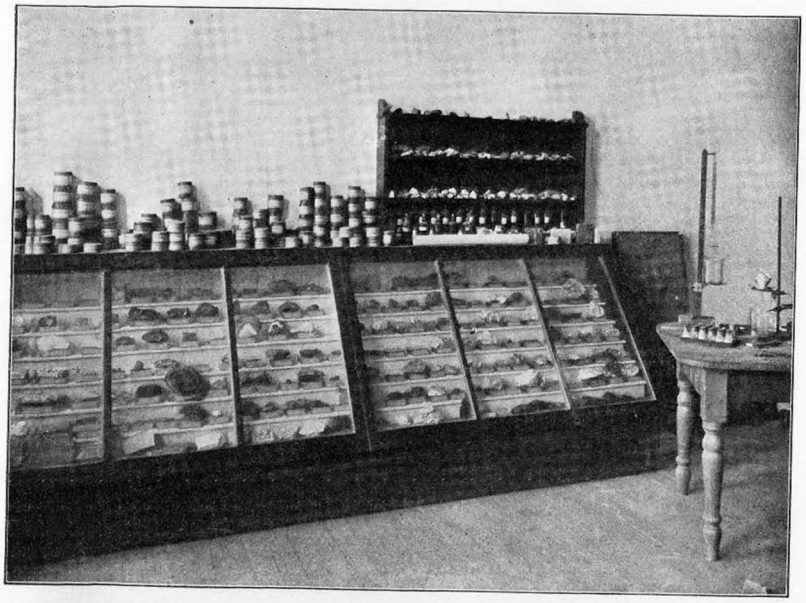
Bacteriological Laboratory.



Biological Laboratory.

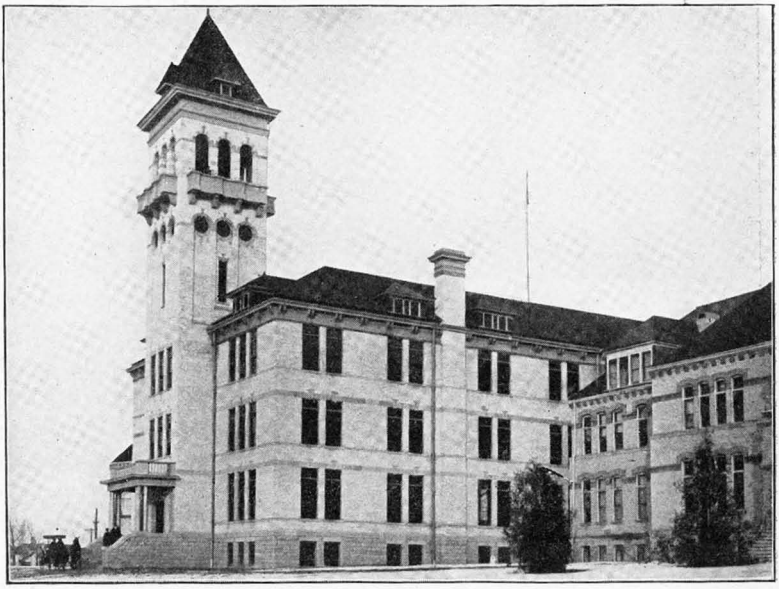


Corner in Zoological Museum.

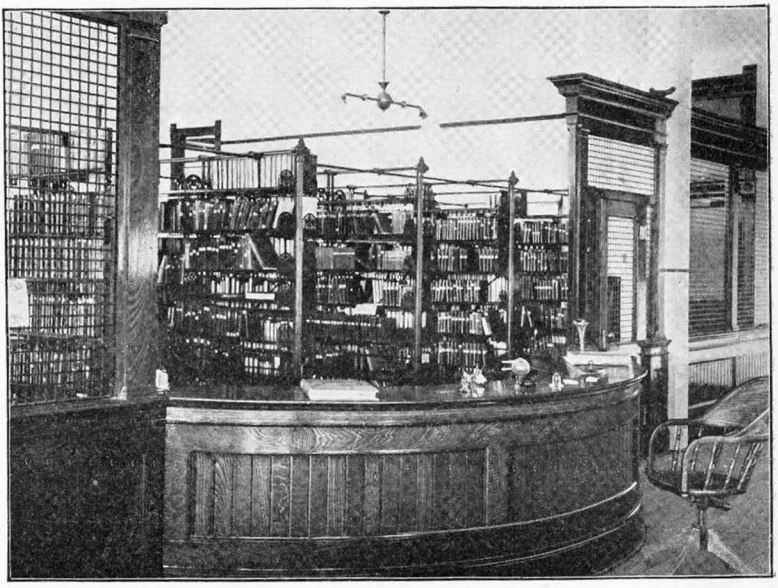


SECTION OF MINERALOGICAL LABORATORY.

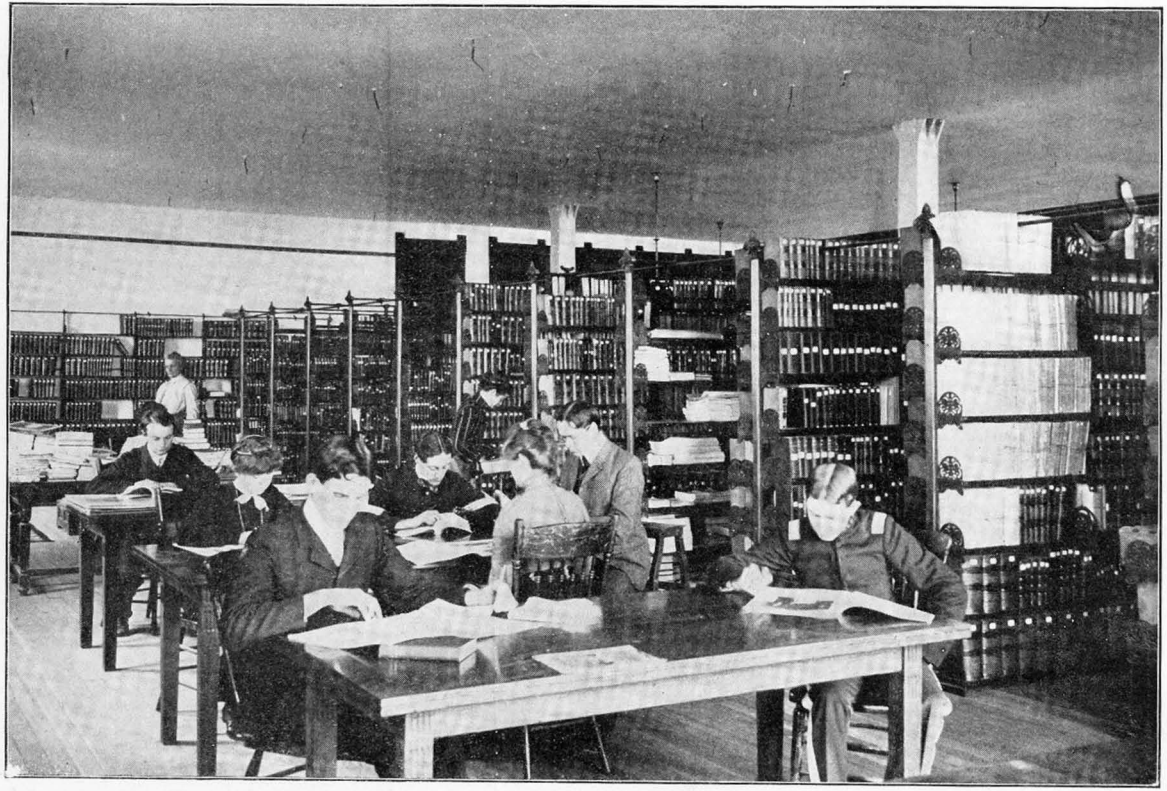
SECTION OF MINERALOGICAL MUSEUM.



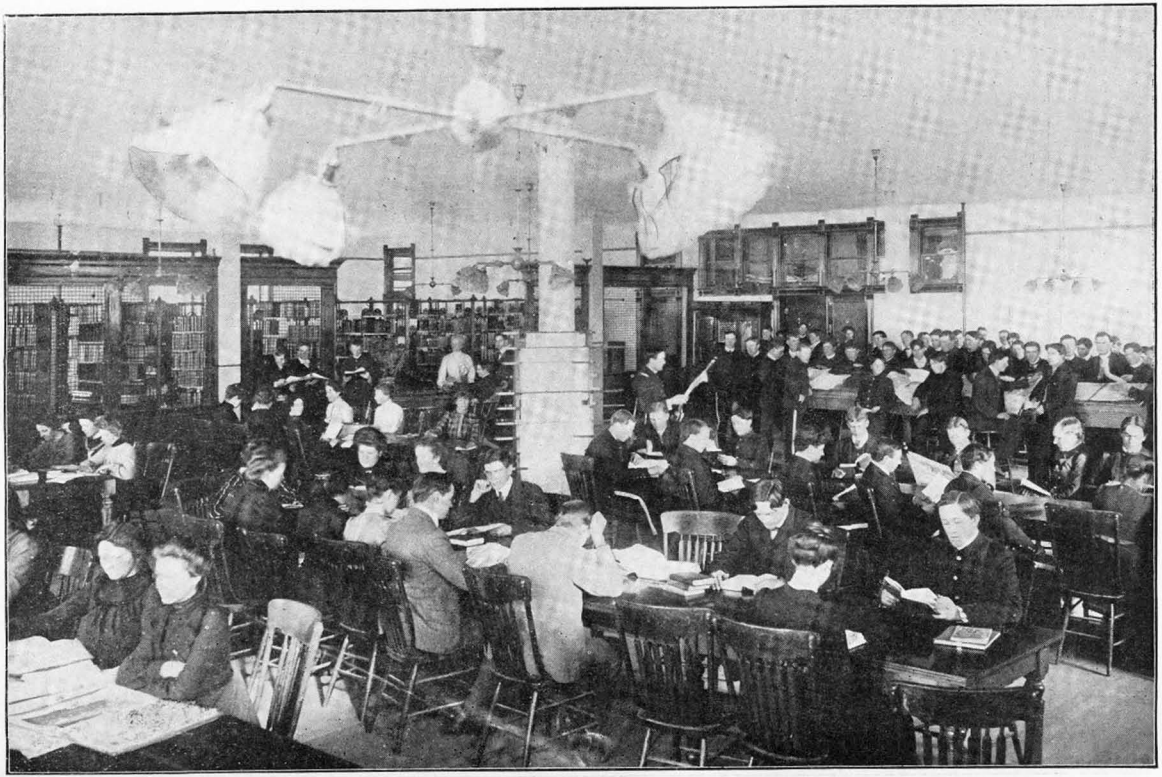
NEW FRONT OF MAIN BUILDING.



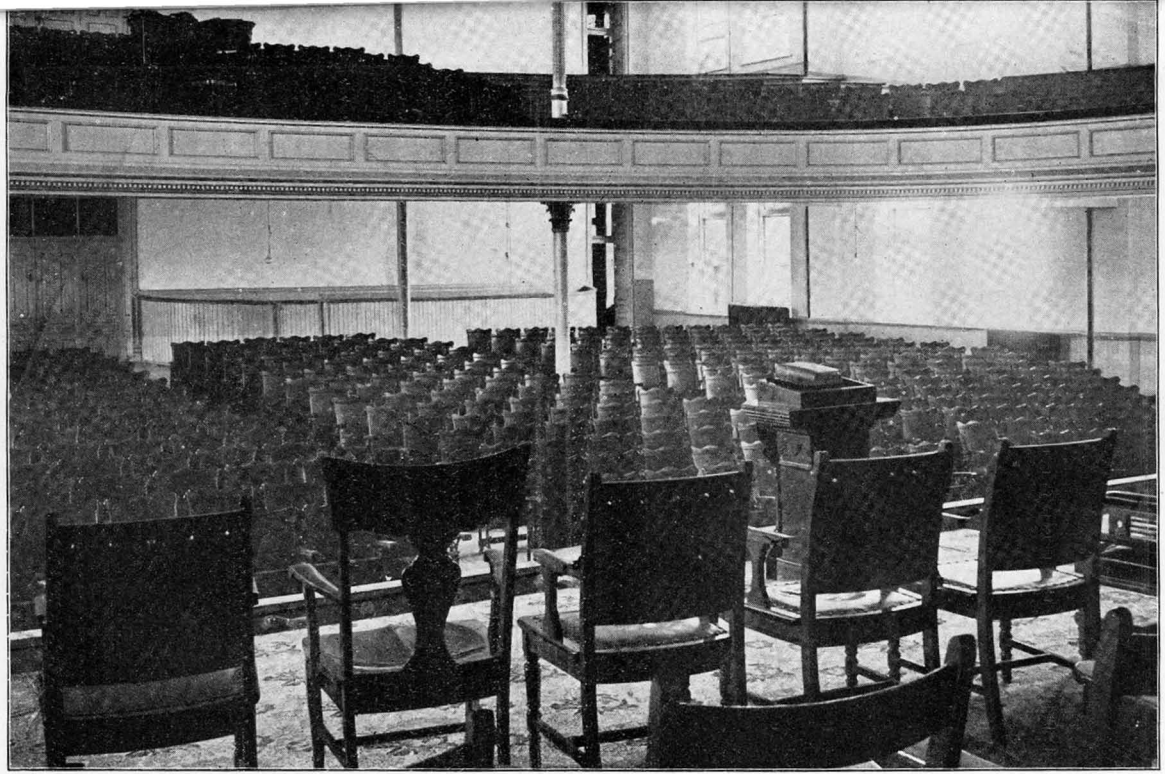
DELIVERY COUNTER, COLLEGE LIBRARY.



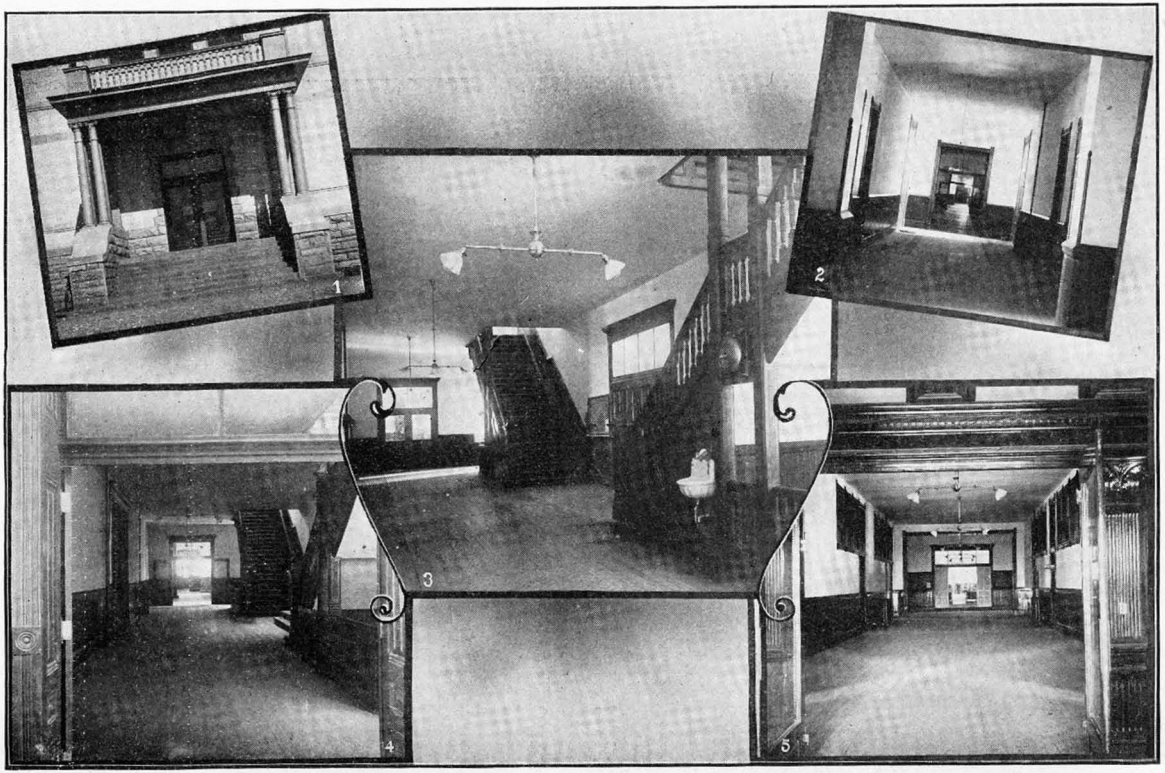
STACK ROOM, COLLEGE LIBRARY.



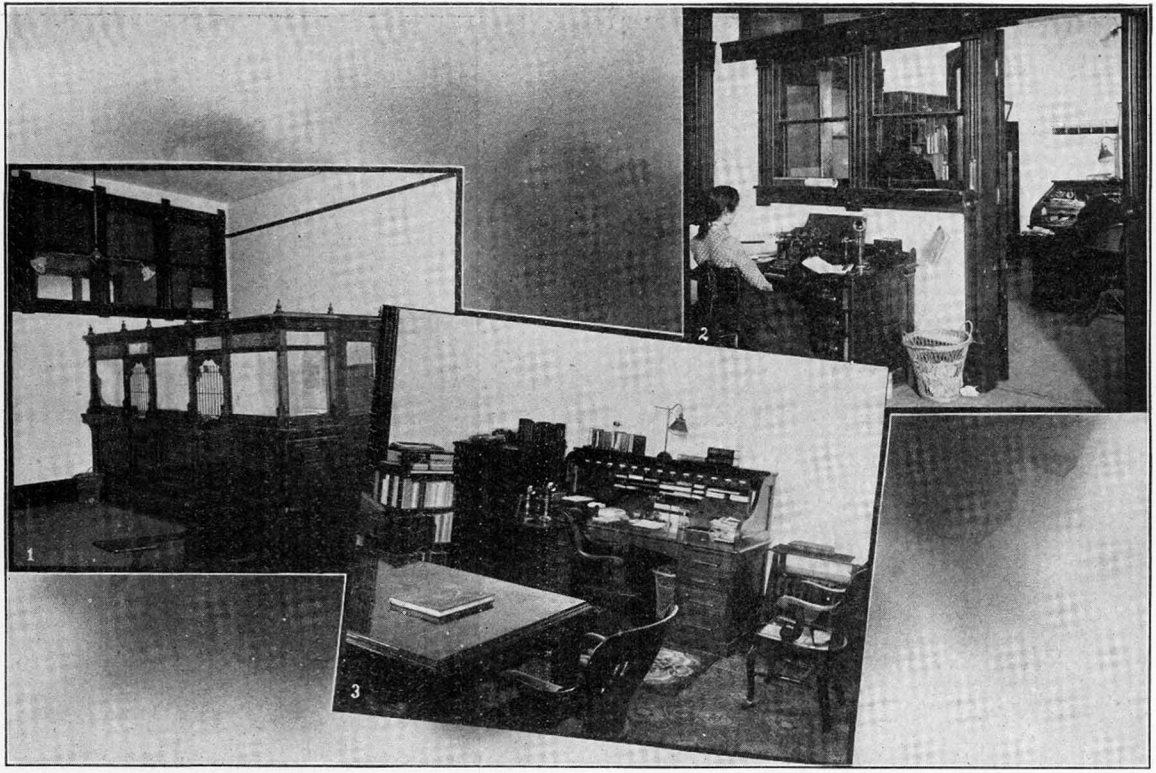
READING ROOM, COLLEGE LIBRARY.



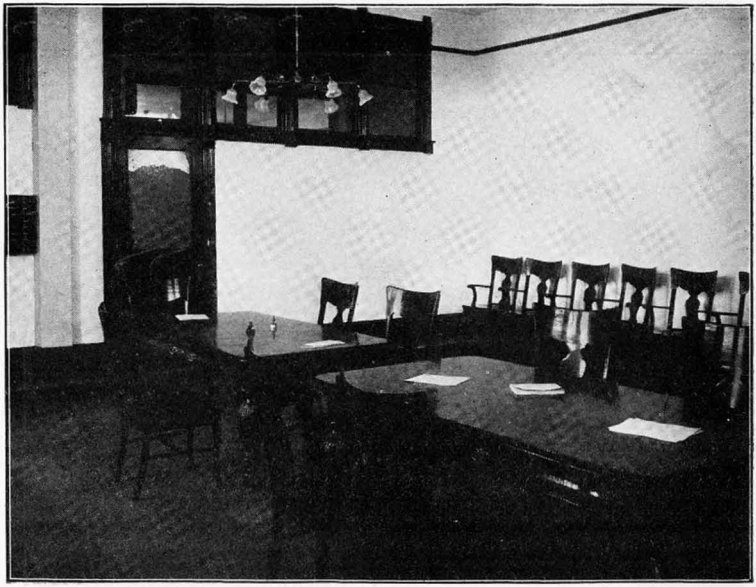
AUDITORIUM.



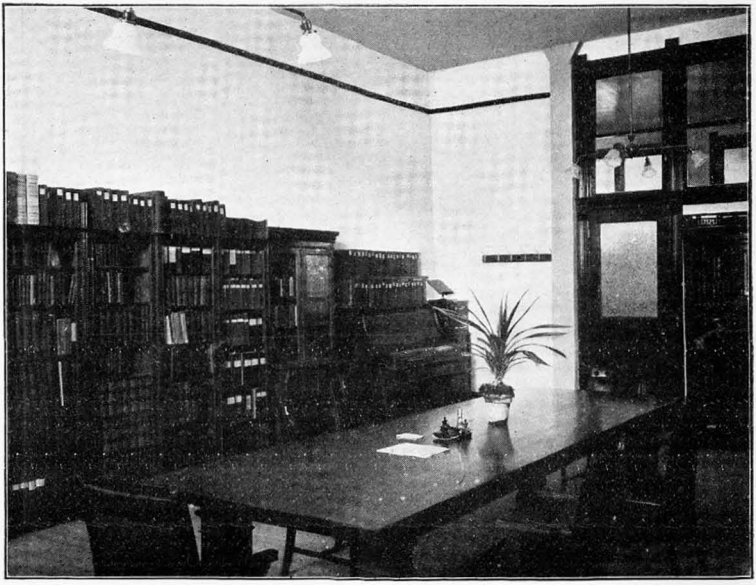
1. Entrance to Main Building. 2. Corridor, Main Building, First Floor. 3. Corridor at Entrance to Auditorium. 4. Corridor, Main Building, Second Floor. 5. Corridor, New Front of Main Building.



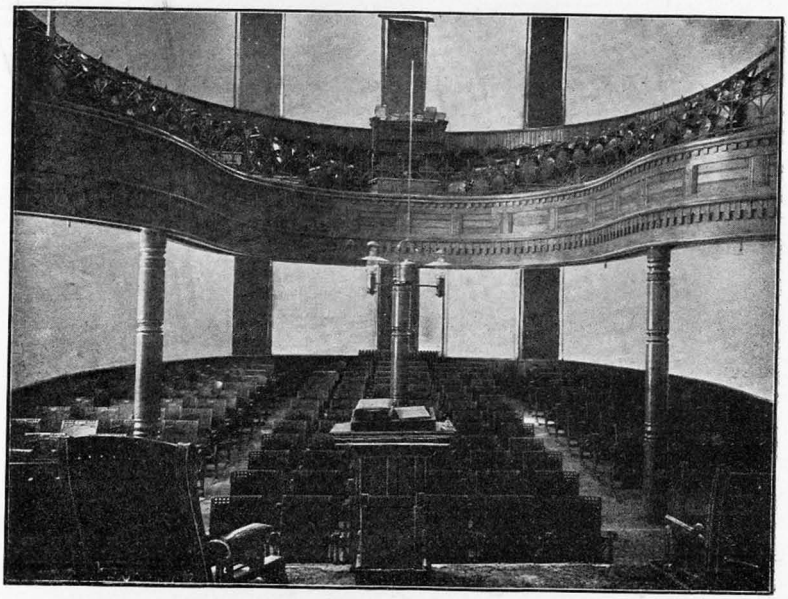
1. Registrar's Office. 2. Secretary's Office. 3. President's Private Office.



FACULTY ROOM.



PRESIDENT'S OFFICE.

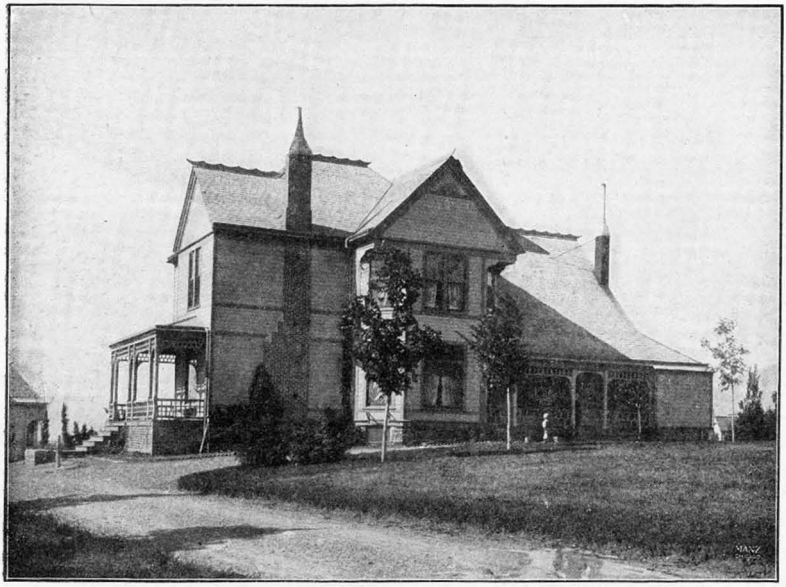


SOCIETY HALL.

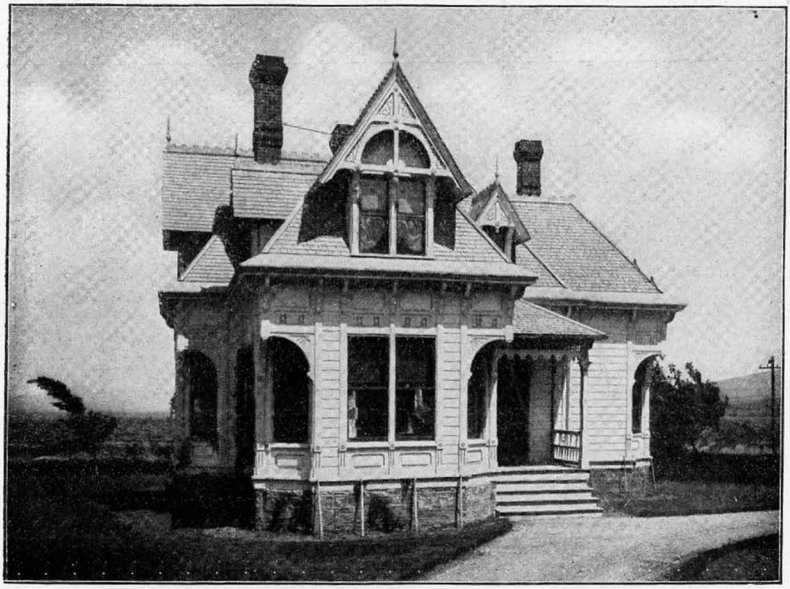
COLLEGE DORMITORY.

RECEPTION ROOM—COLLEGE DORMITORY.

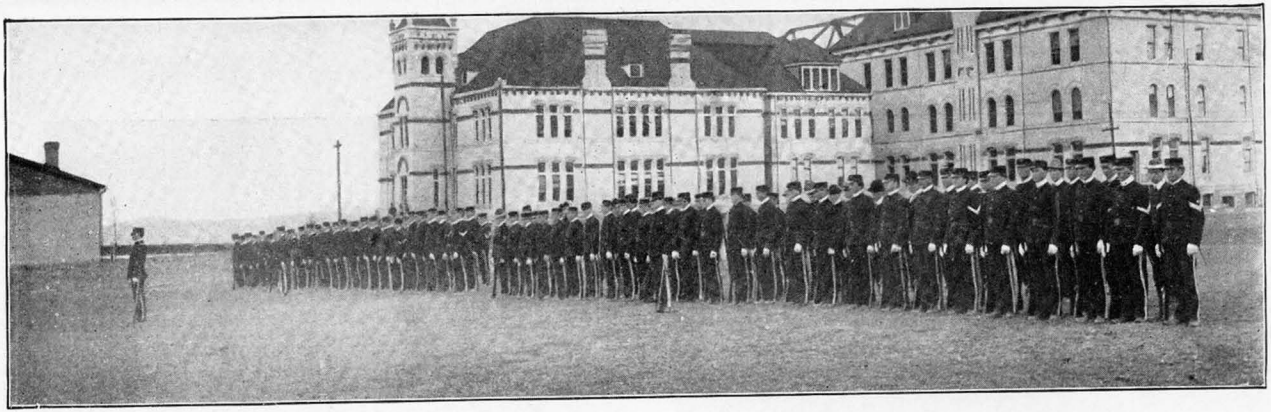
STUDENTS' ROOM—COLLEGE DORMITORY.



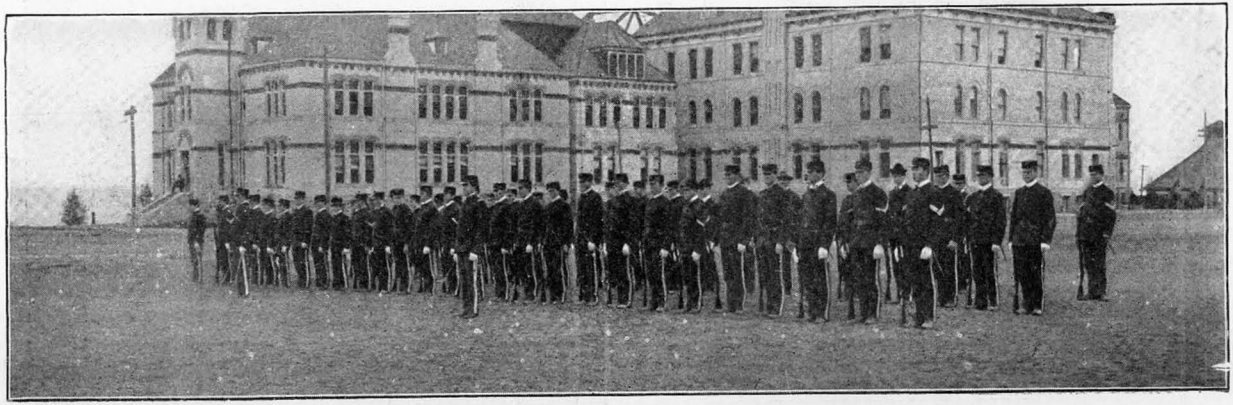
RESIDENCE OF THE PRESIDENT.



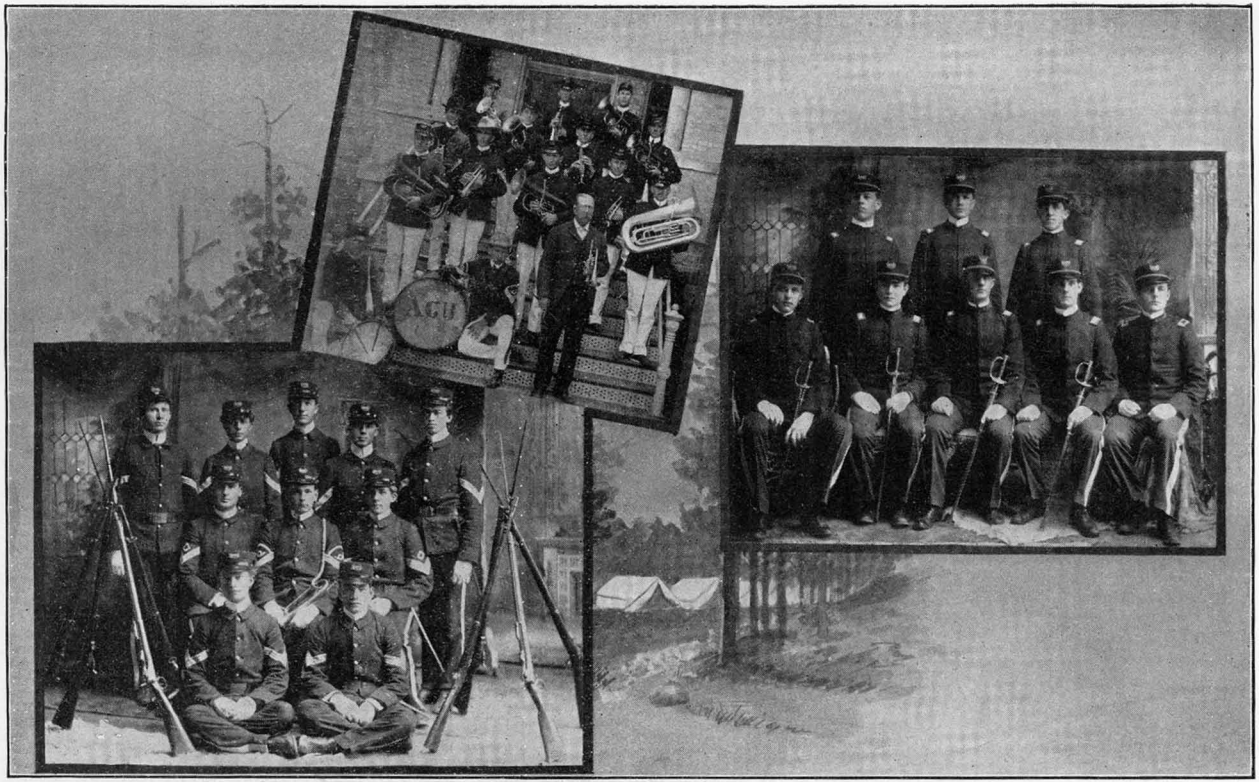
RESIDENCE OF DIRECTOR EXPERIMENT STATION.



College Cadets—Battalion.



College Cadets—Company A.



MILITARY OFFICERS AND BAND.

PHYSICAL CULTURE.

AGRICULTURAL COLLEGE OF UTAH.

General Information.

The Agricultural College of Utah constitutes part of the public school system of the State. It comprises five different schools,—the School of Agriculture, the School of Domestic Science and Arts, the School of Commerce, the School of Engineering and Mechanic Arts, and the School of General Science; also the Agricultural Experiment Station, which, while not providing directly for instructional work, is one of the most important departments of the institution. The organization, purpose, and equipment of the College, together with the character and extent of the work offered, are described, so far as the limits of space will allow, in the following statements and schedules.

FOUNDATION AND ENDOWMENT.

An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each Senator and Representative in Congress," from the sale of which lands there should be established a perpetual fund, "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies and including military tactics,

to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the state may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The Act forbids the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings. The states accepting the provisions of the Act are required to provide for the construction and maintenance of the necessary buildings and for the expenses of administration in carrying out the purpose of the Act.

On March 8, 1888, the Utah Legislative Assembly accepted the national law, and, in accordance with its provisions, founded the Agricultural College of Utah. The amount of public lands granted to this institution, under the provisions of the Act of Congress, was 90,000 acres; but by the terms of the Enabling Act, passed by Congress and approved July 16, 1894, providing for the admission of Utah as a state, the amount was increased to 200,000 acres.

Under an Act of Congress, approved March 2, 1887, the College receives $15,000 annually for the maintenance of the Agricultural Experiment Station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

Under an Act of Congress, approved August 30, 1890, the College receives $25,000 annually, "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their application to the industries of life."

In addition to the income from the national government and from the land grant fund, the College is dependent upon the State Legislature for such appropriations as are needed to meet the requirements of the several departments in accordance with the pro-

visions of the Acts of Congress, and to provide for the further development of the institution consistent with the educational and industrial demands of the state.

HISTORY.

In 1888, the Legislature appropriated $25,000 for buildings, and the county of Cache and the city of Logan gave one hundred acres of land on which to locate the College. Plans were prepared for the Main Building, and part of the south wing was completed. In September, 1890, the institution was first opened for the admission of students. Regular courses were offered in Agriculture, Domestic Arts, Civil Engineering, Mechanic Arts, and Commerce; also a Preparatory course, and special courses in Agriculture, Mining Engineering and Irrigation Engineering.

The Legislature of 1890 appropriated $48,000 for the construction of an Experiment Station Building, two laborers' cottages, and a farm house, and for the purchase of apparatus and the employment of administrative officers. The Legislature of 1892 provided $108,000 with which the south wing, the north wing, and part of the center of the Main Building were completed; rooms in the basement were provided with machinery and other facilities for shopwork; the scientific laboratories were more thoroughly equipped; and other additions were made which added greatly to the facilities of the institution for advanced work. In 1894, additional apparatus was provided, and a forcing house and a veterinary laboratory were constructed. In 1896, the Legislature passed a law providing an annual appropriation to the College of $1500 for the purpose of holding Farmers' Institutes in the different counties of the State. During this year, part of the Mechanic Arts Building was completed, and the forge shops were removed from the Main Building. In 1897, the Legislature made

an appropriation for the maintenance of a Manual Training School, and for the extension of the Mechanic Arts Building, providing rooms for the chemical laboratories and the carpentry and machine shops; manual training courses were established in mechanic arts and domestic arts. In 1899, a greenhouse was constructed and equipped. In 1900, a department of art was established, additional class rooms were furnished, the several departments throughout the institution were more thoroughly organized, and other improvements were made, adding to the facilities for thorough and efficient work. The Legislature of 1901 appropriated $108,200 for general maintenance and various improvements, including the completion of the front of the Main Building, the construction of model farm buildings and a vegetation house, and the purchase of additional land for work in irrigation investigations, and additional apparatus.

In March, 1901, the Sub-Freshman course and the elementary courses in Agriculture and Commerce were abolished and regular three-year courses of high school grade were established in Agriculture, Domestic Science, and Commerce, each leading to a certificate of graduation. The Manual Training Course in Mechanic Arts was increased from three to four years, and the Manual Training Course in Domestic Arts was increased from two to three years. An additional year's work was prescribed for admission to the baccalaureate courses, thereby raising the standard of the regular College work one year. These College courses in Agriculture, Domestic Science, Commerce, Engineering, and General Science, were made co-ordinate and were more clearly differentiated from the elementary or high school courses.

The Legislature of 1903 appropriated $110,975 for general maintenance and for additional buildings and equipment. An appropriation of $12,500 was also made for experimental work in dry farming, to be conducted by the College in different parts of the State. In March, 1903, the Board of Trustees established five schools: the School of Agriculture, the School of Domestic Science and Arts, the School of Engineering and Mechanic Arts, the

School of Commerce, and the School of General Science. The College Council was also established and a more complete organization effected throughout all the departments of the institution.

GOVERNMENT.

The government of the College is vested primarily in the Board of Trustees, and, under their control, in three other administrative bodies,—the College Council, the College Faculty, and the Staff of the Experiment Station. These, in their several capacities, determine the policy and maintain the efficiency of the institution.

THE BOARD OF TRUSTEES consists of seven members, appointed by the Governor with the approval of the State Senate. This board assumes the legal responsibility of the institution, cares for its general interests, and directs its course by the enactment of all necessary by-laws and regulations. Vested in it is the power to establish professorships and to employ the instructing force and other officers of the College.

STANDING COMMITTEES OF THE BOARD OF TRUSTEES. Between sessions, the power of the trustees rests with an executive committee, whose actions are referred to the Board for their approval. Another committee is concerned with the funds and accounts of the College, while a third has general charge of all building and repairs throughout the institution. In addition to these, there are committees, largely advisory, having to do with the employment and service of College officers, and with the work of particular departments.

THE COLLEGE COUNCIL consists of the President of the Board of Trustees, the President of the College, and the professors, the associate professors, and the assistant professors. All the important questions of discipline and policy are considered by this

body. Its duties extend to the arrangement and correlation of courses of study, the requirements for admission and graduation in the several courses, and the final measures of discipline in cases of flagrant violation of College rules.

THE STANDING COMMITTEES OF THE COUNCIL are, with two exceptions, representative of the several schools of instruction in the College. They have charge of the enrollment and progress of students in the respective schools, and have general direction of the work there carried on. The Committee on Scholarship and Graduation investigates the records of all candidates for certificates and degrees, and makes recommendations to the Council. To another committee of the Council is delegated the duty of arranging and carrying on Farmers' Institutes throughout the State.

THE COLLEGE FACULTY includes the President, the professors, the associate professors, the assistant professors, the librarian, the instructors, and the assistants. As an administrative body it is concerned with the ordinary questions of methods and discipline and with various matters pertaining to the general welfare of the College. Through its standing committees it is in more intimate contact with the student body and with the life and interests of the college community.

THE STANDING COMMITTEES OF THE FACULTY have delegated to them the immediate direction of various phases of college life. The conduct of the student in his college home and his regularity in performing college duties; the publications of the College and the students; the interests of the students on the athletic field, in the amusement halls, and in their various organizations—all these things are within the province of appropriate committees experienced in the management of such matters.

THE EXPERIMENT STATION STAFF consists of the President of the College, the Director of the Station, and the chiefs, with their assistants, of the departments of Agronomy, Horticulture, Animal Industry, Chemistry, Irrigation Engineering, and Poultry Culture. This body is employed in the investigation of problems

peculiar to agriculture in this portion of the country, the purpose being to improve conditions and results. It is further responsible for the circulation, through private correspondence and regular bulletins, of such information as is of practical value to the farming communities.

THE STUDENTS. The College is maintained at public expense for the public good. The students, therefore, are under a peculiar obligation to perform faithfully all their duties to the state, the institution, and the community. Most important of these is an active interest in all that concerns the moral and intellectual welfare of the College. Regularity of attendance, faithful attention to studies, and exemplary personal conduct are insisted upon at all times, and the administrative bodies of the College are fully empowered to secure these results.

POLICY.

It is the policy of the Agricultural College of Utah, in accordance with the spirit of the law under which it is organized, to provide a liberal, thorough, and practical education. The two extremes in education, empiricism and the purely theoretical, are avoided, the practical being based upon, and united with, the thoroughly scientific. All the practical work, on the farm, in the orchards, vineyards, gardens, dairy, commercial rooms, kitchen, sewing rooms, different scientific laboratories, and carpenter, forge, and machine shops, is done in strict accordance with scientific principles. In addition to the practical work of the different courses, students are thoroughly trained in the related subjects of science, and in mathematics, history, English, and modern languages. While the importance of practical training is emphasized, the disciplinary value of education is kept constantly in view. It is recognized that the mind and eye and hand must be trained to-

gether in order to secure symmetrical development. The object is to inculcate habits of industry and thrift, of accuracy and reliability, and to foster all that makes for right living and good citizenship.

LOCATION.

The Agricultural College is located in Logan, Utah, the county seat of Cache County, which is one of the most prosperous agricultural counties in the state. The city has a population of about 6,000; it is noted for its freedom from vice, is quiet, orderly, clean, and generally attractive, with neat homes, good, substantial public buildings, electric lights, and water system; the citizens are thrifty and progressive. The College is beautifully situated on a broad hill overlooking the city, one mile east of Main Street, and commands a view of the entire valley and of its surrounding mountain ranges. The beauty of the location is perhaps unsurpassed by that of any other college in the country. A few hundred yards to the south is the Logan River, with its clear water and luxuriant grasses and shrubs. A mile to the east is a magnificent mountain range and a picturesque canyon. In other directions the towns and farms covering the green surface of Cache Valley, and seen through the clear atmosphere, constitute a delightful and impressive panorama. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about twelve by sixty miles in dimensions, almost entirely under cultivation, completely surrounded by the Wasatch Mountains, and is one of the most beautiful and healthful valleys in the western region.

BUILDINGS AND GROUNDS.

The College buildings comprise the Main Building, the Experiment Station Building, the Mechanic Arts Building, the Dor-

mitory, the Conservatory, the Veterinary Laboratory, four barns, the Poultry Building, and residences for the President of the College, the Director of the Experiment Station, and the Farm Superintendent, and cottages for farm laborers.

THE MAIN BUILDING is constructed of brick and stone. It is 360 feet long, 200 feet deep in the central part, and four stories in height. It is heated by steam and lighted by electricity in every part. The rooms are light and pleasant, and the halls spacious, extending on each floor the entire length of the building. This building contains the large auditorium, with a seating capacity of about 1,500; a small auditorium, or society hall, which will seat 400; the administrative offices; the library and reading rooms; the gymnasium; the agricultural, the biological, the botanical, the chemical, and the physical laboratories, museums and lecture rooms; the Station chemical laboratories and museum; the office and the class rooms of the commercial department; the sewing and millinery rooms; the laundry, kitchen, and dining rooms; the museum, and the offices of the department of domestic science; the dairy rooms; the armory and drill hall; the offices and class rooms of the department of civil engineering; and the class rooms for English, mathematics, modern languages and art.

THE EXPERIMENT STATION BUILDING is a brick structure, 45 feet long and 35 feet wide, two stories in height. It contains the laboratory of the Horticulturist; the offices of the Director of the Station, the Agronomist, the Horticulturist, and the Poultry Manager; the mailing room; and a dark room for photographic work.

THE MECHANIC ARTS BUILDING, situated just south of the Main Building, is a one-story structure, with the exception of the central part, which is two stories high. It is built of brick and has a corrugated iron roof. Including the extension provided this year, it has a ground floor area of 16,600 sq. ft., and is divided into four groups of rooms as follows:—for the wood working department—three rooms, with a floor area of 5,956 sq. ft.; for foundry work, forging, and carriage building—three rooms, with a floor space of 6,840 sq. ft.; for machine shop—one room,

1,512 sq. ft.; for draughting room (temporarily used as a testing laboratory), class rooms, director's office, library, and power room—six rooms, with a floor space of 3,376 sq. ft. The second floor—2,500 sq. ft.—is divided into four rooms, viz., Mechanic Arts Museum, blue printing room, room for painting, varnishing and polishing wood work, and instructor's office. The building is heated by steam, well lighted and ventilated throughout, and well equipped for all the work undertaken.

Adjoining the Mechanic Arts Building is a store house, 27 by 40 feet, two stories high.

THE DORMITORY is a brick and stone structure, 50 feet wide by 80 feet long, four stories in height. It contains thirty-three rooms for students, each 12 by 14 feet, exclusive of closet; a reception room for students, 19 by 27 feet; a model kitchen; a dining room; a pantry, supplied with all modern conveniences; a laundry room; bath rooms; and rooms for the matron and for the employees. The rooms of this building are provided with steam heat and electric light, and each room has two registers for ventilation.

THE CONSERVATORY is of the most modern type, 90 by 25 feet, and is filled with beautiful flowering and ornamental plants. There are three compartments of equal size, one for semi-tropical plants, such as ferns, palms, bananas, etc., one for roses, and one for carnations and other plants. The equipment is used to supplement class work in botany, floriculture, and horticulture.

THE VETERINARY LABORATORY building, situated several hundred yards to the rear and east of the main College building, is a stone and frame structure, 18 feet wide and 42 feet long, two stories in height. It contains a dispensary, an operating room, stalls, etc. It is heated by steam.

THE BARNS. There are four barns, for horses, cattle, sheep and hogs. The *horse barn* is a wooden structure, 60 feet square, and contains model sanitary stables for horses, besides storage divisions for hay, grain, and seeds, and rooms for car-

riages and wagons, farm implements, and machinery; also the farm foreman's room and repair shop. A ten horse-power electric motor furnishes power for grain threshing, feed grinding, and fodder shredding. The *cattle barn* is 106 feet by 104 feet. It is provided with the most modern equipment throughout, including iron stalls, cement floors, mangers, etc. There are accommodations for seventy-five head of cattle; also hospital rooms, feed rooms, a milk room, a root cellar, and storage room for hay and grain. The *sheep barn* is a modern building, 94 feet by 41 feet in dimensions, with accommodations for seventy-five sheep, and storage room for feed. The *hog barn* is a wooden structure, 65 feet by 31 feet. It contains two feed rooms, a cook room, an abattoir room, and twelve pens, each of which is provided with an outside run. This building accommodates sixty mature animals.

THE POULTRY BUILDING covers 260 feet by 25 feet, with yards 100 feet wide on each side.

The building will be divided into three sections, as follows:— first, the brooder section, with a capacity for about one thousand chicks, second, the exhibition section, divided into some fifteen pens for representative breeds; third, the experimental section, with a capacity of over five hundred hens. This is divided into thirty-two pens, with an outside yard one hundred feet long for each pen, it is shut off from the public and used for conducting experiments on different problems and questions of poultry culture. The building is heated by a hot water system. In the front part are an office, a feed and weigh room, store room and a sleeping apartment. The basement, twenty-five feet by thirty feet, is used only for incubators.

The land occupied by the College and its several departments embraces about 111 acres. Of this, thirty acres constitute the CAMPUS, which is tastefully laid out and adorned with flower-beds, and individual specimens and groups of ornamental shrubs and trees, both evergreen and deciduous. There are broad stretches of lawn, and wide drives and walks leading gracefully from various parts of the Campus to the College buildings. During the sum-

mer the conservatory contributes its hardy plants for lawn decoration.

Immediately east of the main building are the parade grounds and athletic field of about ten acres. The farms comprise 71 acres; the orchards, the forestry, the vineyards, and the small fruit and vegetable gardens, ten acres. All parts of the College grounds are used by the professors in charge of instruction in agriculture and horticulture for the purpose of practical illustration in their respective departments; they are also used for the work of the Experiment Station.

EQUIPMENT.

THE DEPARTMENT OF AGRONOMY is provided with a large collection of agricultural plants and seeds, and other illustrative material. The Agricultural Laboratory is equipped with balances, a self-registering dynamometer, an appliance for measuring the resistance to tractive force of incline and obstruction, a double-tree hitch apparatus, horse calipers, and apparatus for determining the water-holding capacity of soils, specific gravity of soils, etc. There is also a model of a horse arranged for determining by experiments, the influence on draft of direction of traces, weight of horse, strength of hock muscles, etc. An apparatus has been provided to demonstrate the influence of head diameter, length and bends on the rate of discharge of water through lines of tile and water pipe. The College farm is equipped with the best farming implements and machinery, including plows, cultivators, planters, cutters, shellers, grinders, a binder, a threshing machine, an electric motor, etc. For illustrative and experimental purposes, the farm is divided into numerous plats, on which different classes and varieties of farm crops are grown.

For the work in ANIMAL INDUSTRY, general use is made of the College barns, live-stock, dairy, etc. The live-stock consists

of Clydesdale and Shire draft horses; Hereford, Short Horn, Holstein, and Guernsey cattle; Shropshire, Cotswold, Leicester and Rambouillet sheep; and Berkshire, Poland China, Tamworth, and Yorkshire hogs. A live-stock class room is provided, where the animals may be brought before the class for inspection and criticism. The Dairy occupies a floor space of about three thousand square feet, which is divided into seven rooms for the various processes of dairy work. The department is equipped with the apparatus necessary for all the processes of butter and cheese-making and milk testing. For butter-making there are milk vats and heaters, hand and power separators, hand and power churns, a combined churn and worker, and a Mason butter worker. For cheese-making there are four vats, gang and upright presses, and a curing room. Ample facilities are provided for illustrating the handling of milk for the milk trade, including the Star milk cooler, an intermittent pasteurizer, etc. The milk testing laboratory is as well equipped as any similar laboratory in the country. There are two steam and two hand Babcock testers, and nearly every type of Babcock test apparatus. There is also apparatus for testing the acidity of milk or cream, and a delicate balance, used in testing cheese and butter. The department has an eight horse-power boiler and a six horse-power engine, and model cold storage rooms for butter and cheese. The model poultry house and equipment affords special facilities for illustrative and practical experimental work with poultry.

THE BOTANICAL LABORATORY has a good supply of apparatus with which to do systematic and microscopic work. The herbarium contains 3,000 mounted and named specimens to which the students have access at all times. There are 700 samples of seeds for use in economic botany. The general equipment includes a compound microscope for each student's use; 15 Bausch and Lomb dissecting microscopes; microtome; hand section cutters; stains; slides, and everything necessary for successful botanical work. The orchard, with over 300 varieties of apples, pears, peaches, plums, apricots, and cherries; the vineyards with 60 varieties of grapes, including the hardy and tender, or California, kind; the forestry

experiment, containing many kinds of hardy trees and shrubs; and the small fruit and vegetable gardens, all are used in connection with the work in botany and horticulture for practical illustrative purposes.

THE VETERINARY LABORATORY is supplied with surgical instruments, a modern operating table, an operating room, box stalls for patients, the necessary medicine, etc. Among the more important surgical instruments are a complete set of dental instruments, mouth speculum, tracheal and roaring instruments, neurotomy set, thermo-cautery, castrating and spaying instruments, obstetrical and parturition instruments, postmortem and diagnostic instruments, and other material found in a well equipped hospital. In this laboratory the agricultural students have practice and observation in the treatment of animals.

THE DEPARTMENT OF DOMESTIC SCIENCE AND ARTS is located in the Main Building, occupying the first floor of the south wing, besides several rooms in the basement. On the first floor are the office and reception room; a large lecture room; a laboratory and museum, provided with cabinets, charts, and about three hundred specimens showing the composition of food materials and the processes of their manufacture; a room for instruction in home nursing, with proper furnishings to give practice in making and changing beds for the sick and the general care of the sick room; three large sewing rooms and a fitting room, furnished with the latest improved machines, small sewing tables, low chairs, cutting tables, tracing boards, electric stove for pressing iron, wardrobes and cupboards for holding unfinished work, large display cabinets for finished work, and cabinets containing samples showing the process of manufacturing wool, silk, cotton, and linen. In the basement are two large class kitchens, each containing twelve individual combined work-tables and cupboards, with gas stove on each. The equipment of these rooms includes two large two-oven coal ranges and a single coal range, an Aladdin oven, and an electric stove. There are ample pantries and store rooms, and all necessary utensils and modern conveniences for teaching cooking.

The dining room is furnished with extension tables, chairs, sideboards, cupboards, fruit closet, and a generous supply of china, silver, and table linen. The laundry room is provided with stationary tubs, a Chicago clothes-drier, ironing tables, skirt boards, and other necessary furnishings.

THE COMMERCIAL DEPARTMENT is completely equipped for thorough and efficient work in modern business courses. The entire third floor of the front of the Main Building is occupied by the department, covering a floor area of 7,225 square feet. Each room is specially designed and furnished for the work to be conducted in it. The furniture of the department consists of hard wood counting room desks and counters, arranged in such a way that students may either sit or stand while at work. A complete set of modern banking fixtures, a wholesale house, a retail house, a freight office, a real estate office, and an insurance office, with permanent blank books, letter files, rubber stamps, copying presses, college currency, blanks, etc., are provided by the College. The room for typewriting contains twenty-four machines—ten Remingtons, ten Smith Premiers, three Underwoods, and one Hammond—each provided with a regular typewriting stand and copy-holder. The room for stenography is furnished with tables designed for convenience in practice work in stenography. The penmanship room and general class rooms are furnished with single desks.

MECHANICAL AND CIVIL ENGINEERING are taught with the assistance of a large and carefully selected equipment for practical work in shop, field, and laboratory. The shops naturally demand the most extensive outfit. The carpentry rooms are supplied with fifty benches, with full sets of tools. The wood-working machinery includes fifteen pattern-makers' lathes, universal saw tables, jig and band saws, planer, mortiser and borer, shaper, universal trimmer, and sander; and there are the usual clamps, vises, glue-tables, veneer-presses and other special tools required for a shop of this kind. For the work in forging there are provided thirty-eight forges and anvils, each with a complete equipment

of tools. In addition, there are two furnaces, one belted power hammer, drills, special swages, cutting-off machines, and leveling tables, with a considerable assortment of special tools. The equipment for foundry work will include cupola, brass furnace, core oven, annealing furnaces, flasks, patterns, ladles, and full sets of regular tools for flask moulding. The outfit used in carriage building will comprise, in addition to the required benches, a full supply of carriage-builders' tools. In the room devoted to machine work in iron are found five large engine lathes, a universal milling machine, a universal grinding machine, a speed lathe, a large drill press, a sensitive drill (built by students), a crank shaper, a large planer, grindstones, and emery wheels; every machine having its regular equipment of tools and attachments. The tool room is well supplied with drills, reamers, cutters of various kinds, files, calipers, etc. The store-house contains a full stock of materials to be used in the regular work of the various shops. All machinery, including blast and exhaust systems for the forge shop and foundry, is electrically driven.

The Engineering Laboratory is equipped with dynamometers, testing machines, engines, brakes, etc. There is a regular apparatus for steam and electrical measurements, and for determining the efficiency of rope, belt and chain driving. This, in connection with the power and steam-heating plants of the College, furnishes an excellent opportunity for students to secure useful and important data, and to become familiar with the various methods of testing.

In Civil Engineering the interest naturally centers at two points, the apparatus provided for field work, and the equipment of the draughting rooms. For the work in surveying there are three first-class transits, three levels, a Johnson plane table, a planimeter, a clinometer, and other supplementary instruments, together with a full supply of chains, tapes, etc. For the work in hydraulics, the equipment includes a number of water meters of different kinds, a hook gauge, water registers, etc. The excellent equipment on the experiment farm in the shape of measuring apparatus, and the many canals, rivers, and power plants in the immediate vicinity, afford excellent opportunity for very thorough

training in hydraulic work. The drafting rooms are supplied with modern draughting tables, special instruments, models, handbooks, calculating tables, slide-rules, and such other accessories as are needed for office work.

A recent innovation is the establishment of a special Engineering Library, located in the Mechanic Arts Building. It contains the private library of the instructor, with such other books from the general library as may be required for special study. Current engineering literature is placed at the disposal of junior and senior students in Engineering and advanced students in Mechanic Arts.

THE BACTERIOLOGICAL LABORATORY is well equipped with modern apparatus for the work offered. Each student is provided with a high-power Leitz or Bausch and Lomb microscope with nose-piece and sub-stage. One microscope with triple nose-piece, fitted with 1-12 and 1-16 oil-immersion objectives, Abbe condenser and rotary and mechanical stage, is used for identification work. Other equipment includes an autoclav, hot air and steam sterilizers, incubator, refrigerators, aerobic plate apparatus, anaerobic tube apparatus, microtome, analytic balance, cages, permanent mounts, glassware, chemicals, stains and culture media.

THE ZOOLOGICAL LABORATORY is equipped with water and gas, high power double nose-piece Bausch and Lomb microscopes, dissecting microscopes, condenser, camera lucida, rotary microtome, paraffine bath, freezing apparatus, microspectroscope, photomicrographic camera, haemacytometer, platinum ware, glassware, reagents, stains, etc. For the work in anatomy and physiology, in addition to the above, there are enlarged models of the eye, ear and brain; and a life size paper mache manikin; an articulated and a disarticulated human skeleton, and one or more skeletons from each group of the vertebrates. In the work in zoology the collection of mounted mammals and birds; alcoholic and dry specimens of reptiles, fish and the invertebrates; the Smithsonian material; and living forms from the aquaria are used. For the work in entomology the exhibition collection of insects, the

systematic collection of the department, and the private collection and library of the professor are available.

THE CHEMICAL LABORATORIES occupy the second floor of the north wing of the Main Building, and include ten rooms. One large room is devoted to the work in general chemistry and qualitative analysis, and two smaller rooms to work in organic chemistry and quantitative analysis. A pleasant room, centrally located with respect to the laboratories, is used as the lecture room of the department. Adjoining the main laboratory and the lecture room are a large store room and a preparation room for the use of the instructor. On the east side of the wing, two large rooms and a store room are used for the work carried on by the Chemical Department of the Experiment Station. A room in the basement is used for the work in fire assaying.

The chemical laboratories are well equipped for elementary and advanced work in chemistry. In the College laboratories especial provision is made for the elementary study of the science. Individual desks, fitted with drawers and cupboards, and a very complete assortment of chemical glassware and chemicals, render the work in the laboratories easy and pleasant. There are also several valuable collections of gums, oils, coloring matters, foods, etc., that are important aids to the students in this department. The laboratories of the Experiment Station are excellently equipped for advanced work. The extensive collection of apparatus includes, among other things, balances; silver calorimeter; half-shade polariscope; several sets of hydrometers; thermometers; spectroscope; vacuum pan; filter press; apparatus for gas and microchemical analysis; a large supply of platinum ware; several models of elutriators; a very complete set of apparatus for food and fodder analysis; stirring apparatus; steam and hot air drying ovens; microscopes; apparatus for soil analysis; and a large supply of Jena glassware, and chemically pure reagents. The laboratories are fitted with water, gas, hoods and all other conveniences.

THE PHYSICAL LABORATORY occupies a suite of rooms on the first floor. The equipment is fairly complete, consisting of all the necessary pieces of apparatus for class demonstration; a set of apparatus for elementary laboratory work, sufficient for sixteen students working on the same experiment; and all pieces required for an experimental course in heat and electricity. Some of the more important pieces are balances and weights by Sartorius; platform balances; an Atwood machine, with aluminum friction wheels and electrical attachments; centrifugal apparatus; working models of levers and pulleys; air pumps; thermometers in different scales; barometers; hydrometers; hydraulic press; porte lumiere; telescope; microscope; an assortment of lenses, mirrors, and prisms; spectroscope; sonometer; siren; tuning forks; organ pipes; Chladni's plates; electric static machine; Leyden jars; electroscope; electrophorus; magnetometer; galvanometers of tangent, sine, balastic, astatic, and D'Arsonval types; Wheatstone bridges, both box and wire forms; resistance boxes; standard resistance and standard cell; primary and storage cells of various kinds; Ruhmkorff coils; electric generators and motors; Crooke's tubes and Geissler tubes.

THE COLLEGE MUSEUMS are supplied with a large number of specimens illustrative of geology and palaeontology, vertebrate and invertebrate zoology, mineralogy; also about four thousand five hundred species of the Rocky Mountain flora, and a large number of the woods of the United States. There is also an extensive collection of grains, representing the produce of Utah and other states. A small collection of Indian and Polynesian products and curiosities has been made. Contributions of fossils, ores, animals, relics, or other material of value to the museums will be highly appreciated. All gifts are labeled and preserved, and the name of the donor is kept on record.

THE ART ROOMS contain many valuable casts, most of which are reproductions of the works of the masters, together with many smaller casts suitable for the more simple work in drawing. A few reproductions of the paintings of the masters are in the

equipment, and the charts to be used in the work in design; also the tables, drawing boards, and cases necessary for the work.

THE LIBRARY occupies the entire second floor of the new front part of the Main Building. Besides the Librarian's office and cataloguing-room, there are the stack-room, 32 by 68 feet, sufficiently high for two stories of bookstacks, with a capacity of between forty and fifty thousand volumes; and the main reading room, 52 by 74 feet. In the stack-room, the book-stacks are so arranged as to form department alcoves, which are abundantly lighted and well ventilated, and will be used as study rooms. The library contains about 11,500 bound volumes, and 12,000 pamphlets. Additions are made from time to time to meet the requirements of the several departments. The subjects covered are general literature, including poetry, fiction, and criticism; history, travel, biography, political economy, and sociology; mental and moral philosophy; commerce, engineering, natural science, agriculture, domestic science and art.

THE READING ROOM is provided with racks and shelves for newspapers and journals, and with reading-tables. Ninety of the best literary, scientific, technical and agricultural periodicals are taken by subscription. Through the liberality of the publishers, forty-seven of the Utah newspapers are regularly received; and ninety-four of the best agricultural papers of the country are sent to the library in exchange for the publications of the Experiment Station. These are all placed in the reading room for the use of readers. The principal dictionaries and encyclopedias, including the Encyclopedia Britannica, American Cyclopedia, Appleton's Cyclopedia of American Biography, Allibone's Dictionary of Authors, Encyclopedic Dictionary, and Century Dictionary, are kept in cases in the reading room within easy access of the readers.

THE AGRICULTURAL EXPERIMENT STATION.

THE AGRICULTURAL EXPERIMENT STATION is a department of the College, supported mainly by Congressional appropriations, supplemented by the receipts from the sales of farm products. The Station was created for the special purpose of discovering new truths that may be applied in agriculture, and of making new applications of well established laws. It is, therefore, essentially a department devoted to research; and as such, it does the most advanced work of the College.

The Experiment Station is not, in the ordinary sense, an institution where model farming is carried on. It has a much higher purpose. The practices of the farmer, good and bad alike, are subjected to scientific tests, in order to determine why the one is bad and the other good. Acting on the suggestions thus obtained, new lines of investigation are begun, with the hope that truths of great value to the farmer may be discovered.

The Station has for its present object the study of the underlying laws of irrigation. On the farm, in the orchards, gardens, and barns, experiments are going on that, in time, will lead to the establishment of an art of irrigation that will be based on laws developed by scientific methods. Special investigations for the purpose of encouraging the horticultural, dairy, and poultry industries, and of reclaiming the alkali and unirrigated lands of the state are also in progress.

By an act of the State Legislature of 1903, five experimental farms have been established in different parts of the state, for the purpose of demonstrating the possibilities of dry or arid farming on the soils of Utah. The work of these stations has been placed under the direction of the Experiment Station. In co-operation with the Department of Agriculture, the Station is maintaining a farm four miles west of Salt Lake City, upon which experiments upon the methods of reclaiming alkali lands are in progress.

An annual report and four or five bulletins containing the results of the experiments of the Station, are published annually for free distribution among the people of the State.

The Experiment Station has a high educational value. Nearly all the members of the Station Staff are also members of the College Faculty, and the students, therefore, receive directly, and at first hand, an account of the methods and results of the work of the Station. On the farm, in the gardens, orchards, barns and laboratories, the students receive training in the application of scientific truths to the practical affairs of men. The opportunities that the Experiment Station offers for advanced work in several branches of science are of great importance. The methods of science have been carried into the operations of every human occupation; and the more fully scientific methods of accuracy, persistence, and adjustment are understood by a man, the greater, as a rule, will be his success in any walk of life. The scientific method and spirit characterize all the operations of the Station, and none can fail to be benefited by a study of the experiments that go on at all times of the year.

The Station Staff are always glad to assist the advanced students of the institution in any investigations they may wish to undertake.

COLLEGE SOCIETIES.

Six different societies are maintained by the students of the College—two doing general literary work and four following special lines. Of these, one is exclusively for women, two for men, and three are open to both sexes.

THE SOROSIS SOCIETY is the oldest of the College societies now in existence, and is somewhat exclusive in its nature. It is open to women only, and its object is the general literary and social culture of its members. Weekly meetings are held, at which members usually occupy the time, with an occasional lecture

from the outside. At least one public entertainment of a literary nature and several social functions are given each year. The society has elegant apartments in the College building, equipped and furnished by the members.

THE STAR LITERARY SOCIETY is open to both men and women, and has for its object training in debate and recitation, and in the elements of parliamentary law and practice. To accomplish this, the society organizes and conducts conventions, mass meetings, legislatures, etc.

THE AGRICULTURAL CLUB is an organization of instructors and students interested in agricultural education. The object of this organization, which dates its existence in the College from November, 1901, is to promote social feeling among its members and to keep in touch with current events in agricultural science. One of the special features of the Club work consists of lectures illustrated by stereopticon views. The meetings are held bi-weekly in the Society Hall. Occasional receptions are given during the year.

THE LAW CLUB was organized by the students in political science, and membership is restricted to this department. It aims to investigate questions of law and court procedure. Much attention is paid to debate, and intercollegiate contests are occasionally arranged.

THE COMMERCIAL CLUB has for its purpose to promote the interests of the commercial department, to popularize the commercial courses, and to consider matters of interest not encountered in routine work. By social and literary contact, department loyalty is sought to be strengthened. All commercial students are eligible to membership.

THE ENGINEERING SOCIETY is an organization primarily intended to promote the interests of engineering in the College. While the principal effort is directed toward the professional subjects, the society has recently extended its scope to include social advantages as well. Membership is confined to the engineering department.

ATHLETICS.

THE ATHLETIC ASSOCIATION is organized for the promotion of the general physical culture of the students, and the encouragement of a proper spirit in favor of hearty, manly sports. The association is sustained with universal interest and is accomplishing excellent results. It has at its disposal a ten-acre plot of ground east of the College buildings, where tennis courts, base-ball diamond, and foot-ball field have been laid out. A running track is to be built around the foot-ball field. Lockers and baths are provided for those in training. For indoor exercises the gymnasium room on the third floor is available, with a complete equipment of wands, dumb-bells, Indian clubs, bucks, horses, bars, and more elaborate apparatus. The drill hall may also be used for large classes in gymnastics. The men are assisted in their work by an instructor, whose aim is to help them make the most of the exceptional opportunities athletics offer for mental and moral as well as physical development. Those competing on the College teams must first pass a satisfactory physical examination. At present the athletic work of the school includes foot-ball, base-ball, tennis, track athletics, and basket-ball. During the winter months an opportunity is given the men to take systematic drill in gymnastics under the direction of the instructor.

THE COLLEGE PAPER.

The students of the College maintain, as the official organ of the college community, a monthly magazine, "Student Life." The scope of the publication is best indicated by the names of its six departments; viz., Literary, Editorial, Student Affairs, Department Notes, Locals, Alumni and Exchanges. The editorial staff and business managers are chosen from the student body, and receive the enthusiastic support of a large number of students, faculty, alumni, and friends.

STUDENTS' EXPENSES.

Tuition is free. Students pay an annual entrance fee of $5. The privileges of the library and museum are free. In the laboratories, workshops, cooking rooms, and in typewriting, students are charged an incidental fee to cover the cost of materials used by them in their exercises. With proper care this expense need not exceed from $2 to $5 per year in each course.

The fee charged for a certificate of graduation is $2.50; and for a diploma $5. Students are held responsible for any injury done by them to the College property.

Good board and rooms can be obtained in private houses for from $3 to $3.50 per week. By renting rooms and boarding themselves, students are able to reduce the cost of room and board to less than $2.50 per week.

THE COLLEGE DORMITORY has accommodations for sixty. The second floor is used exclusively for women, and the third floor for men, there being no communicating passage between the two. The building is equipped throughout with steam heat and electric lights, and each floor has bathroom and toilet accommodations. The cost of room and board, including fuel and light, is from $13 to $15 a month, according to the kind of room used. Students furnish their own bedding; also rug or carpet, if desired. Board is payable in advance every month. The Dormitory discipline corresponds as nearly as possible to that of home life. Boisterous and rude conduct is not allowed. Parents or guardians of students in the Dormitory receive a monthly report.

Admission and Graduation.

CONDITIONS OF ADMISSION.

Graduates of the district schools, and those who have completed the Sub-Preparatory course of the College, are admitted without examination to the College Preparatory Course, and to the three-year courses in Agriculture, Domestic Science, and Commerce. Other applicants for admission to these courses must pass a satisfactory examination in the subjects of the Sub-Preparatory Course.*

Students who have completed the College Preparatory Course are admitted without examination to the Engineering courses, and to the General Science Course. They are also admitted without examination to the four-year courses in Agriculture, Domestic Science, and Commerce, being conditioned in the technical work preceding the freshman year in the course taken.

Students who have completed the first two years of the three-year courses in Agriculture, Domestic Science, or Commerce, are admitted without examination to the regular four-year courses in Agriculture, Domestic Science, or Commerce, respectively. They are also admitted without examination to the Engineering courses, and to the General Science Course, being conditioned in any of the subjects not already completed of the College Preparatory Course.

Those who have completed any of the three-year courses are admitted without examination to the sophomore year in the corresponding courses leading to degrees. Students may transfer from one regular course to another by making up all the technical work not completed of the course to which they transfer. Students will

*For a description of these subjects, see Sub-Preparatory Course.

be allowed to substitute technical work of one course for that of another, only by permission of the Faculty.

Other students are admitted to any of the courses leading to degrees, either upon the certificate of accredited schools, or upon satisfactory examination in the subjects of the College Preparatory Course. For a description of these subjects, see "College Preparatory Course" and "Departments of Instruction." By permission of the Faculty, students may be allowed upon entrance to substitute work in other courses for Drawing 1, History 2, Carpentry 5, and Forging 4a. Certificates from schools not accredited will be considered as the merits of each case may warrant.

Candidates for admission to advanced standing are required to pass satisfactory examinations in all the work of the preceding years, or to present satisfactory evidence of having completed an equivalent of such work in some other school or college.

Students are admitted to the Sub-Preparatory Course and to the Manual Training courses without examination, except such as may be necessary in order to determine the section in which they can work to the best advantage; the classes in these courses being divided into sections, which are graded in such a way as to be especially adapted to those who are not prepared to enter any of the more advanced courses. Candidates for admission to the Sub-Preparatory Course, and to the Manual Training courses in Domestic Arts and Mechanic Arts, must be at least sixteen years of age; to all other courses, fifteen.

SPECIAL STUDENTS.

Persons of mature years, who for satisfactory reasons desire to pursue a special line of study, may be admitted as special students, provided they give evidence of ability to do the work desired. Special students may be allowed to graduate in any of the courses, on condition that they complete the required work and pass the necessary examinations.

REGISTRATION.

All students register at the beginning of the collegiate year for the work of the whole year. Changes in registration, and credit for work not registered, will be allowed only by special permission of the Council.

CLASSIFICATION.

All regular students are classified as first, second, and third year students in Agriculture, Domestic Science, Manual Training in Domestic Arts, or Commerce; or as first and second year students in the College Preparatory Course; or as first, second, third, and fourth year students in the Manual Training Course in Mechanic Arts; or as freshman, sophomore, junior, and senior students in any of the four-year courses leading to degrees; according to the lowest year in which they have subjects, provided such subjects are equivalent to one-third of all the work taken; otherwise in the next year above.

GRADUATION.

Students who complete the three-year courses in Agriculture, Domestic Science, Commerce or Manual Training in Domestic Arts, or the four-year course in Manual Training in Mechanic Arts receive certificates of graduation. The degree of Bachelor of Science, Bachelor of Science in Agriculture, Bachelor of Science in Domestic Science, Bachelor of Science in Commerce, Bachelor of Science in Civil Engineering, and Bachelor of Science in Mechanical Engineering are conferred upon those who complete

the regular four-year courses in General Science, Agriculture, Domestic Science, Commerce, Civil Engineering, and Mechanical Engineering, respectively.

To obtain a degree, the student must complete an equivalent of sixteen hours of class work weekly for four years. Three hours of laboratory work count as one hour of class work.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, written papers during the term, one-third, and final examination for the term, one-third. In all courses, an average standing of not less than 75 per cent., with no grade less than 60 per cent., is required for graduation.

Students who completed the work of the sophomore or junior year in 1902-1903 will be allowed to continue their courses, and graduate upon completion of the amount of work required at the time of entrance.

Schools and Courses of Study.

For the purpose of more efficient administration, the College is divided into five schools, the School of Agriculture, the School of Domestic Science and Arts, the School of Commerce, the School of Engineering and Mechanic Arts, and the School of General Science. These schools are not educationally separate, but are interdependent and together form a unit. They offer the following courses: (1) Agricultural Course, four years; (2) Domestic Science Course, four years; (3) Commercial Course, four years; (4) Civil Engineering Course, four years; (5) Mechanical Engineering Course, four years; (6) General Science Course, four years; (7) Agricultural Course, three years; (8) Domestic Science Course, three years; (9) Commercial Course, three years; (10) Manual Training Course in Domestic Arts, three years; (11) Manual Training Course in Mechanic Arts, four years; (12) College Preparatory Course, two years; (13) Sub-Preparatory Course, one year; (14) Special Winter Courses in Agriculture, Domestic Arts, and Mechanic Arts.

THE SCHOOL OF AGRICULTURE.

The instruction in Agriculture is divided into the following departments: The Department of Agromony, the Department of Animal Industry (including Veterinary Science) and Dairying, and the Department of Horticulture. The courses of these departments are arranged especially with the view of enabling the student to lay a foundation upon which he can build a successful career as a farmer, or develop into a specialist in Agronomy, Animal Industry and Dairying, or Horticulture. For the student

who expects to return to the farm, a high school course, continuing through three years, has been arranged; and a college course leading to a degree is offered for those who desire to secure positions as farm managers, or as workers in agricultural faculties and in experiment stations. Farming, as commonly conducted in this inter-mountain region, consists of a union of all of the above divisions of the industry, and the three-year course confines itself to laying a foundation that will secure success on these farms; while the longer course enables the student to direct his efforts along the special lines with which he is most concerned.

In the Junior and Senior years, the student is allowed to specialize in Agronomy, in Animal Industry and Dairying, or in Horticulture. In these years also a list of electives are offered from which the student is permitted to select, with the consent of the Committee on Agriculture, a list of studies aggregating not less than sixteen hours each week.

Experience has shown that practically all of the students who take this course come from the farm, and it is assumed that they are acquainted with the various manual operations of farm work. The design of the course is, therefore, to teach the sciences that underlie practical agriculture, and sufficient mathematics, English, history, and other supplementary studies to develop the agricultural students to the intellectual level of the educated in other professions.

The general and department libraries enable the student to become acquainted with a wide range of agricultural and related literature, while the laboratories of the College and the Experiment Station afford opportunity for training and experience that it would be impossible to get from books. The outline of the course and the description of the studies prescribed will give a fuller understanding of the work offered.

A Winter Course in Agriculture is provided, designed to meet the needs of young men of mature years, who desire to follow some agricultural pursuit, and who, though feeling the need of more thorough preparation for their work, can devote only the winter season to such preparation. The subjects pre-

sented are those about which every one engaged in agricultural pursuits should have a definite knowledge. They embody the underlying principles and the best practice. The class room instruction is supplemented by practice in the live-stock judging room, veterinary hospital, College dairy, agricultural and horticultural laboratories and greenhouses, and by visits of inspection to herds and farms and other places of interest.

THE SCHOOL OF DOMESTIC SCIENCE AND ARTS.

The courses in Domestic Science and Arts have for their object to train and broaden the minds of women and to enable them to meet more intelligently the home demands of modern life. When woman has learned to apply the principles of science to the problems of daily living, she will realize that housekeeping is an occupation worthy of the best efforts of the brightest minds; and that the broadest courses in science, economics, and ethics can be applied to the betterment of home life. Formerly the higher education of woman led her away from the practical interests of the home. The recent establishment of domestic science courses in many leading colleges and universities shows a public demand for education toward home life rather than away from it. The State of Utah wisely established such courses when this College was first organized; and the favor with which the work has been received by the public shows the wisdom of the plans. The Domestic Science Course has been strengthened and improved each year, and better facilities for instruction and study have been generously provided. The four-year course gives the same training in mathematics, in English, and in science as is given in other baccalaureate courses, together with a broader culture in literature and modern languages than is offered in any other. Both in the preliminary work and in the advanced years, special studies in the various lines of home science are prescribed in logical order,

and stand as the distinctive features of the course. The three-year course is arranged as preparatory to the advanced years of the degree course, and also graduates with certificates those who are unable to complete the longer course. The Manual Training Course in Domestic Arts is offered for the benefit of those young women who do not wish to take the studies of the regular college years, but desire to devote more time to the subjects of especial interest to women. Such other studies as the student is qualified to pursue may, with the consent of the Faculty, be substituted for those offered in this course.

THE SCHOOL OF COMMERCE.

The purpose of the School of Commerce is to give opportunity for a liberal education with special emphasis upon the commercial phases of life. Persons who complete the Commercial courses should be better prepared to assume leadership and responsibility in business and the various industries and professions. Two courses are offered: one of three years, leading to a certificate of graduation; the other of four years, leading to the degree of Bachelor of Science in Commerce. Students in the three-year course may emphasize the work in Bookkeeping and Accounting, receiving a certificate in "Bookkeeping," or they may emphasize the work in Shorthand and receive a certificate in "Stenography." Those who have finished the three-year course in Bookkeeping are admitted to the Sophomore year as candidates for degrees. The Sophomore year is a continuation of the required work, but the work of the Junior and Senior years is, to a great extent, elective. During the Sophomore year each student is expected to arrange his general plan of work for the Junior and Senior years. He has the choice of the following courses: namely, "Production and Manufacture," "Commerce and Tarnsportation," "Banking and Finance," and "Accounting and Auditing." Some of the work

of these four courses is the same in each course, but the student, in selecting his course, is expected to emphasize the subjects peculiar to that line of work, and in every case his plan must be approved by the teacher in charge of the work selected and the Professor of Commerce before May 1st of the student's Sophomore year. When the student's plan has been approved, his work is continued under the supervision of the professor in charge of the course selected.

The commercial work prescribed for the Junior and Senior years of the various courses is as follows: The course in "Production and Manufacture" will include in the Junior year, Industry 2 a, b; in the Senior year, Industry 3. The course in "Commerce and Transportation" will include in the Junior year, Commerce 2 a, b, c, d, and Political Science 4 and 5; in the Senior year, Commerce 3. The course in "Banking and Finance" will include in the Junior year, Finance 2 a, b, c, and at least two hours in Banking and Finance; in the Senior year, Finance 5. The course in "Accounting and Auditing" will be the same as Banking and Finance, except that Accounting 4 is required in the Junior year, and Accounting 5 is substituted for Finance 5 in the Senior year.

For those who expect to enter upon the profession of law, the Commercial courses afford an admirable preparation. Students who complete these courses will be well prepared for positions as teachers in commercial and department schools where courses in commerce are given. The demand for thoroughly qualified teachers along this line of work is greater than the supply, and many desirable positions are open to those prepared to do the required work.

THE SCHOOL OF ENGINEERING AND MECHANIC ARTS.

The School of Engineering and Mechanic Arts at present includes a four-year course in Civil Engineering and a four-year

course in Mechanical Engineering, each leading to the degree of B. S.; also a four-year course in Mechanic Arts, leading to a certificate of graduation.

It is recognized that the first essential to an efficient and consistent course in engineering is a thorough fundamental training in the underlying principles of mechanical science, together with ample experience in the accepted methods of applying these principles to practical problems. With this in view, thorough courses in mathematics, physics, and theoretical mechanics constitute the work in the earlier years of the Engineering courses, while the Junior and Senior years are devoted chiefly to advanced specialization along the two lines of engineering. Such problems as are of local interest, such as irrigation, power development, power transmission, etc., are made paramount.

The class room work consists largely of lectures and discussions. Numerous problems are assigned to be reported in detail by each student. In these, the method and order of attack and presentation, rather than numerical results, receive the attention and criticism of the instructor. In the shops and laboratory, opportunity is given for handling materials in both actual construction work and in testing for physical and mechanical properties; also for making tests on the efficiency of power-generating and transmission apparatus. In the field, practice is afforded in land, railroad, and hydrographic surveying. In all of this work the student is brought into contact with modern methods of manipulation and all results are compared for accuracy with accepted standards. Besides their practical value, the courses in Engineering have a high disciplinary value, and are especially adapted to develop originality of thought and action. The graphical and analytical methods are used throughout.

The course in Mechanic Arts is intended to qualify students as artisans, and the practical work of the shops and draughting rooms is emphasized. The course admits of a three-fold specialization—in woodcraft, forging, and machine work in metals, with special courses in foundry practice, carriage building, cabinet making, sloyd, etc. In this work are developed correct methods of

using tools and doing the mechanic's work neatly, efficiently, and with rigid accuracy. Sufficient work is given in English, mathematics, and elementary science to represent a fair high school education. Students electing any branch of the Mechanic Arts Course are required to do at least one term's work in the carpentry shop as an initiatory course, and no machine work is given until the student has shown a reasonable efficiency with hand tools. All products of the shop are the property of the department, students being permitted to take away specimens of their work only by special permission.

THE SCHOOL OF GENERAL SCIENCE.

To carry out the work of the several technical schools of the College, an efficient instructing force and a complete modern equipment have been provided in the natural and physical sciences, as well as in mathematics, history, languages, etc. This makes it possible to satisfy the growing demand for strong baccalaureate courses affording a broad general education in the earlier years, and admitting of specialization later, when the student has matured his plans. Such courses constitute the work of the School of General Science, and, paralleling the other degree courses of the College, lead to the degree of Bachelor of Science. The natural introduction to this work is the College Preparatory Course in English, mathematics, etc., with an option of physiography or a language instead of shop work. The work of the freshman year is all prescribed, consisting of English, mathematics, physics, and chemistry—the solid essentials of the specialist along any line. Those who have begun a language the previous year are advised to continue it through the freshman year, and defer the physics until their sophomore work.

Beyond the freshman year, the student, under the direction of the General Science Committee, elects his own line of study. Certain requirements are made, tending further toward a well-

rounded, disciplinary training. If no work has yet been done in modern languages, two years are prescribed in one of these. There is also required the equivalent of five hours through one year in zoology, and of five hours through one year in English, together with one course in history and civics. With these restrictions, the whole field of College work lies open, with the understanding that the student will select some one major subject to which to direct his attention, and will group related courses consistently around this. Ample provision is made for advanced electives of high standard in the various departments, including a considerable amount of research work. The equivalent of sixteen hours through four years is required for graduation.

In THE COLLEGE PREPARATORY COURSE students are thoroughly drilled in the subjects required for admission to the courses in Engineering and General Science.

THE SUB-PREPARATORY COURSE is arranged to accommodate those young men and women who have been deprived of educational advantages until they have reached an age when they cannot advantageously attend the district schools. The special aim is to prepare the students for admission to the more advanced courses of the College, and to provide such training as will be of most value to those who are unable to continue their educational work beyond this course.

AGRICULTURAL COURSE.

This course leads to the degree of B. S. in Agriculture.

Freshman Year.	1st Term.		2nd Term.
Chemistry 1	5		5
Physics 1	3	Veterinary Science 1	3
Animal Industry 5	3	Agronomy 3	3
Horticulture 1	3	Business Customs	3
History 3	3		3
	17		17

Sophomore Year.	1st Term.		2nd Term.
English 6	3		3
Mathematics 4	5		5
Zoology 2	3		3
Botany 2	3	Physics 1	3
Entomology 1	2	Meteorology	2
	16		16

Junior Year.	1st Term.		2nd Term.
English 7	3		3
German or French	3		3
Geology 1	3	Bacteriology	3
Chemistry 3	3		3
*Electives:		Electives:	
Agronomy 4	1		1
Entomology 2	3	Veterinary Science 2	4
Zoology 3	2	Geology 1	3
Animal Industry 2	2	Zoology 3	2
Horticulture 2	3	Horticulture 3	2

*In the junior and senior years, the student is permitted to select from the list of each term a number of studies aggregating with the prescribed work sixteen hours a week.

Senior Year.	1st Term.		2nd Term.
Economics	3		3
Animal Industry 3	2	Animal Industry 4	3
German or French	3		3
Engineering 3a	3	Electives:	
Electives:		Horticulture 5	2
Veterinary Science 3	4	Agronomy 5	3
Zoology 5	3	Horticulture 4	3
Horticulture 6	2	Animal Industry 6	3
Mineralogy	2	Engineering 5c	3
Chemistry 5	3		3
Chemistry 6	3		3
		Zoology 6	3

DOMESTIC SCIENCE COURSE.

This course leads to the degree of B. S. in Domestic Science.

Freshman Year.	1st Term.		2nd Term.
English 6	3		3
Drawing 3	2	Botany	2
Chemistry 1	5		5
H. S. 8, 9, 11	5		5
H. S. 5, 10, 12	2		2
	17		17

Sophomore Year.	1st Term.		2nd Term.
German or French	3		3
Mathematics 4	5		5
Physics 1	3		3
Botany 2	3	Horticulture 4	2
Zoology 2	3		3
	17		16

Junior Year.	1st Term.		2nd Term.
English 7	3		3
German or French	3		3
Chemistry 2	4		4
Elective	6	Bacteriology	3
		Elective	3
	16		16

Senior Year.	1st Term.		2nd Term.
H. S. 13, 14	5		5
Geology	3		3
Chemistry 4	2		2
Economics	3		3
Elective	3		3
	16		16

COMMERCIAL COURSE.

This course leads to the degree of B. S. in Commerce.

Freshman Year.	1st Term.	2nd Term.
English 6	3	3
Mathematics 3	5	5
Political Economy 1	3	3
Conv. 1, Political Sc. 3	3	3
Accounting 3a, b, c	4	4
	18	18

Sophomore Year.	1st Term.	2nd Term.
Chemistry 1	5	5
Physics 1	3	3
Political Sc. 2a, b, c, d	3	3
Banking 1a, b	5	Finance 1a, b 5
	16	16

Junior Year.	1st Term.	2nd Term.
English 7	3	3
German, French or Spanish	3	3
*Elective	10	10
	16	16

Senior Year.	1st Term.	2nd Term.
Mathematics 4	5	5
German, French or Spanish	3	3
*Elective	8	8
	16	16

* During the junior and senior years, students may elect ten and eight hours respectively, but most of the work elected must be in the School of Commerce.

CIVIL ENGINEERING COURSE.

This course leads to the degree of B. S. in Civil Engineering.

Freshman Year.	1st Term.	2nd Term.
English 6	3	3
Mathematics 4	5	5
Chemistry 1	5	5
Physics 1	3	3
Engineering 1a	2	2
	18	18

Sophomore Year.	1st Term.	2nd Term.
German or French	3	3
Mathematics 5	5	5
Physics 2	3	3
Engineering 1b	2	2
Engineering 3a	3	Engineering 3b 3
	16	16

Junior Year.	1st Term.	2nd Term.
German or French	3	3
Mathematics 6	3	Engineering 11 3
Engineering 5a	3	3
Engineering 9	4	Engineering 4a 4
Geology 3	2	2
Engineering 15	1	1
	16	16

Senior Year.	1st Term.	2nd Term.
Engineering 4b	5	5
Engineering 8a	3	Engineering 10 3
Engineering 5b	3	Engineering 5d 3
Engineering 5e	2	2
Economics	3	3
	16	16

MECHANICAL ENGINEERING COURSE.

This course leads to the degree of B. S. in Mechanical Engineering.

Freshman Year.	1st Term.	2nd Term.
English 6	3	3
Mathematics 4	5	5
Physics 1	3	3
Chemistry 1	5	5
Engineering 1a	2	2
	18	18

Sophomore Year.	1st Term.	2nd Term.
German or French	3	3
Mathematics 5	5	5
Physics 2	3	3
Engineering 1b	2	2
Engineering 3a	3	Engineering 6a 3
	16	16

Junior Year.	1st Term.	2nd Term.
German or French	3	3
Mathematics 6	3	Engineering 11 3
Engineering 2a	4	Engineering 4a 4
Engineering 5a	3	3
Engineering 6b	2	2
Engineering 15	1	1
	16	16

Senior Year.	1st Term.	2nd Term.
Engineering 4b	5	5
Engineering 2b	2	3
Engineering 7a	3	3
Engineering 8a	3	Engineering 8b 2
Economics	3	3
	16	16

GENERAL SCIENCE COURSE.

This course leads to the degree of B. S.

Freshman Year.	1st Term.	2nd Term.
English 6	3	3
Mathematics 4	5	5
Physics 1	3	3
Chemistry 1	5	5
	16	16

All the work of the sophomore, junior, and senior years is elective; but students are required to complete two years' work in modern languages, and to take an equivalent of five hours through one year in biology, five hours through one year in English, and one course in history and civics. To obtain a degree, the student must complete an equivalent of sixteen hours of class work weekly for four years. Students who elect a language in the second year of the College Preparatory Course continue the language work in the freshman year, taking physics in the sophomore year.

AGRICULTURAL COURSE.

Those who complete this course receive certificates of graduation.

First Year.	1st Term.	2nd Term.
English 3	4	4
English 4	2	2
Mathematics 2	5	5
Agronomy 1	4	Animal Industry 1, 7 4
Drawing 1	2	2
Military Drill	1	1
	18	18

Second Year.	1st Term.	2nd Term.
English 5	5	5
Mathematics 3	5	5
Zoology 1	2	2
Agronomy 2	3	Botany 1 3
Carpentry 5	2	Forging 4b 2
Military Drill	1	1
	18	18

Third Year.	1st Term.	2nd Term.
Chemistry 1	5	5
Physics 1	3	Veterinary Science 1 3
Animal Industry 5	3	Agronomy 3 3
Horticulture 1	3	Business Customs 3
History 3	3	3
	17	17

DOMESTIC SCIENCE COURSE.

Those who complete this course receive certificates of graduation.

First Year.	1st Term.	2nd Term.
English 3	4	4
English 4	2	2
Mathematics 2	5	5
History 1	3	3
Sewing 5, 6	3	3
Physical Culture	1	1
	18	18

Second Year.	1st Term.	2nd Term.
English 5	5	5
Mathematics 3	5	5
Zoology 1	2	2
History 2	3	3
H. S. 1, Sewing 7, 8	2	2
Physical Culture	1	1
	18	18

Third Year.	1st Term.	2nd Term.
English 6	3	3
Drawing 3	2	Botany 1 3
Chemistry 1	5	5
H. S. 8, 9, 11	5	5
H. S. 5, 10, 12	2	2
	17	18

COMMERCIAL COURSE.

Those who complete this course receive certificates of graduation.

First Year.	1st Term.	2nd Term.
English 3	4	4
English 4	2	2
Mathematics 2	5	5
History 1	3	3
Accounting 1a, b, c	2	2
Typewriting 1a, b	1	1
Military Drill	1	1
	18	18

Second Year.	1st Term.	2nd Term.
English 5	5	5
Zoology 1	2	2
History 6	3	3
Political Science 1	2	2
Industry 1	2	2
Stenography 1a, b or 2a, b, or Accounting 2a, b	4	4
Military Drill	1	1
	19	19

Third Year.	1st Term.	2nd Term.
English 6	3	3
Mathematics 3	5	5
Political Economy 1	3	3
Commerce 1, and Political Science 3	3	3
Accounting 2a, b, or Accounting 3a, b, c	4	4
	18	18

MANUAL TRAINING COURSE IN DOMESTIC ARTS.

Those who complete this course receive certificates of graduation.

First Year.	1st Term.	2nd Term.
English 1	5	5
English 2	5	5
Mathematics 1	5	5
Sewing 1	5	5
Physical Culture	1	1
	21	21

Second Year.	1st Term.	2nd Term.
English 3	4	4
Drawing 1	2	2
H. S. 1, 2, 3	3	3
H. S. 6	5	5
Sewing 2	3	3
Physical Culture	1	1
	18	18

Third Year.	1st Term.	2nd Term.
English 4	2	2
Mathematics 2	5	5
History 2	3	3
H. S. 7	3	3
H. S. 4, 5	2	2
Sewing 3, 4	3	3
	18	18

MANUAL TRAINING COURSE IN MECHANIC ARTS.

Those who complete this course receive certificates of graduation.

First Year.	1st Term.	2nd Term.
English 2	5	5
Mathematics 1	5	5
Penmanship	2	2
Geography	3	3
*(1)(2)(3)Carpentry 1	5	(1)(2)Carpentry 1 or (3) Machine Work 1 — 5
	20	20

Second Year.	1st Term.	2nd Term.
English 1	5	5
Mathematics 2	5	5
Drawing 2	2	2
(1) Carpentry 2, or (2) Forging 1, or (3) Machine Work 2	5	5
Military Drill	1	1
	18	18

Third Year.	1st Term.	2nd Term.
English 3	4	4
Mathematics 3	5	5
Drawing 5	2	2
(1) Carpentry 3, or (2) Forging 2, or (3) Machine Work 3	5	5
Military Drill	1	1
	17	17

Fourth Year.	1st Term.	2nd Term.
Physics 1	3	3
History 3	3	3
Zoology 1	2	2
Drawing 6	3	3
(1) Carpentry 4, or (2) Forging 3, or (3) Machine Work 4	5	5
	16	16

*The numbers preceding the shop courses indicate the order in which students who intend completing the course are required to take the subjects; e. g., a student having elected (3) in the second term of the first year will be expected to continue with the subject marked (3) in each succeeding year. A student having taken carpentry during the first year, may elect (2) in the second year and continue with (2) through each succeeding year.

COLLEGE PREPARATORY COURSE.

First Year.	1st Term.	2nd Term.
English 3	4	4
English 4	2	2
Mathematics 2	5	5
History 1	3	3
Drawing 1	2	2
Military Drill, or Physical Culture	1	1
	17	17

Second Year.	1st Term.	2nd Term.
English 5	5	5
Mathematics 3	5	5
Zoology 1	2	2
History 2	3	3
Carpentry 5, or Physiography, or *Language	2	Forging 4a, or Physiography, or Language 2
Military Drill, or Physical Culture	1	1
	18	18

SUB-PREPARATORY COURSE.

Third Year.	1st Term.	2nd Term.
English 1	5	5
Mathematics 1	5	5
Geography 1	3	3
English 2	5	5
Penmanship	2	2
Military Drill, or Physical Culture	1	1
	21	21

*Students may take German, French, Spanish, or Latin, three hours a week.

WINTER COURSES.

For the accommodation of persons who can attend school during the winter months only, the following special courses are provided, beginning January 5, 1904. The Agricultural Course will be for four weeks; the Domestic Arts and Mechanic Arts courses will be twelve weeks. The work is elective, the student being allowed, with the approval of the professor in charge, to select the studies desired.

Students who take any of the winter courses may elect such other regular College studies as they are prepared to pursue advantageously.

AGRICULTURE.

Agronomy	5	Agricultural Chemistry	2
Stock Judging and Management	3	Horticulture	3
Stock Feeding	3	Entomology	2
Dairying Lectures	2	Vet. Science	3
Agricultural Bacteriology	2	Farm Accounts	3
Dairying Practice	4	Irrigation	2
		Poultry Keeping	2

DOMESTIC SCIENCE AND ARTS.

Cooking Lectures	5	Sewing	2
Cooking Practice	2	Dressmaking	2
Hygiene	5	Fancy Work	2

MECHANIC ARTS.

Carpentry A	5	Forging A	5
Carpentry B	5	Forging B	5

Departments of Instruction.

AGRICULTURE.

PROFESSOR MERRILL.
PROFESSOR HUTT.
PROFESSOR CLARK.
ASSISTANT PROFESSOR DRYDEN.
MR. CROCKETT.
MR. JARDINE.

AGRONOMY.

1. SOILS AND FARM CROPS. The instruction in this subject is thoroughly practical and is intended to show how a knowledge of the natural sciences may be applied in farm practice. Lectures and recitations are supplemented by practical demonstrations in the laboratory, in the vegetation house and on the farm. Required of all first year students in Agriculture. Daily, during the first term, at 9:00.*

(a) *Soils:* A study of the origin, formation and classification of soils with reference to their agricultural value. Special attention is given to the peculiar soils of the arid region; the conditions of fertility and the circumstances that influence it; reclamation of arid and alkali lands; and methods by which the original soil fertility may be maintained.

(b) *Farm Crops:* A study of the conditions of germination and growth and the circumstances modifying these conditions; practical methods for increasing the yields of crops; constituents of plants; sources and action of the various elements of plant food; the selection of crops for the arid region; the system of rotation best adapted to this state, taking into consideration the

*Throughout this division of the Catalogue, the number of hours assigned to each course indicates the actual time required in class-room, shop, or laboratory. Hours of credit, unless specified, may be found by reference to "Schools and Courses of Study," pp. 54-67.

distribution of labor, the production of manure, and the extermination of weeds; summer fallow; and management of meadows and pastures. Students in this course are required to make plans for farms, keeping in view the distribution of labor and the maintenance of soil fertility. Frequent excursions are made to the College farms for noting the habits of growth of different farm crops.

2. RURAL ENGINEERING. The course of instruction included under this head embraces the subjects of irrigation, drainage, bulidings and fences, and machinery. Required of all second year students in Agriculture. Three hours a week during the first term. W., Th., S., at 10:40.

(a) *Irrigation.* In this course the subject is studied with reference to its history, its different methods, the time of application of water, and the water requirements of different crops. Students have excellent opportunities to study the work in irrigation at the Experiment Station.

(b) *Farm Drainage.* A study is made of the practical effects of drainage, of land needing drainage, and of the different problems involved in laying out and putting in a system of drains.

(c) *Buildings and Fences.* The arrangement, design, location, and cost of farm buildings; fences and gates—their necessity, cost, kinds, and construction; wood for gates and fences—time to cut, conditions favorable to decay, and methods of preservation; discussion of fence laws.

(d) *Farm Machinery.* Attention is given to the tools and machinery of the farm—hoes, spades, plows, harrows, cultivators, rollers, planters, cutters, grinders, mowers, rakes, binders, wagons, etc.; their development, design, construction, draft, efficiency, durability, and care. The department has a large collection of lantern slides which are used in illustrating this subject.

3. SOIL PHYSICS. In this course the physical and chemical properties of soil receive attention; different methods of treatment are examined, as well as the influence of these methods upon moisture, texture, fertility and production. Further discussions

include: soil texture as affecting capillarity; osmosis and diffusion as affected by cultivation and cropping; the determination of the absolute and apparent specific gravity of soils; the rate of percolation of water and of air through soils; the determination of temperature and moisture of various soils under field conditions; the effect of sub-soiling and various methods of tillage upon soil moisture and plant growth; the effect of different crops upon the the soil and upon the succeeding crops; the effect of special and general farming upon the productive capacity of soils. Two recitations and one laboratory period per week. Required of all third year students in Agriculture. Three hours a week during the second term. T., Th., S., at 12:20.

4. AGRICULTURAL EXPERIMENTATION. In this course students have access to the Experiment Station library, and make a study of the work of experiment stations and experimenters in this and other countries. The students are required to make abstracts of a sufficient number of bulletins, bearing on a selected line of work, to become familiar with their scope and aim. Required of all students in Agriculture electing Agronomy as a major. One hour a week throughout the junior year.

5. RURAL ECONOMICS. Required of all students in Agriculture electing Agronomy as a major. Three hours a week during the second term of the senior year.

(a) *History of Agriculture.* This course covers the general development of the agriculture of those nations which have contributed most to agricultural progress. The development of Roman agriculture is specially emphasized, influencing as it has the agricultural practices in other nations.

(b) *Farm Management.* This course includes a discussion of special and general systems of farming, different systems of rotation, laying out and improving farms, economic bestowal of labor, and the profitable use of machinery.

ANIMAL INDUSTRY.

1. GENERAL COURSE. In this course a study is made of the qualities of animals as indicated by external form. This work also includes score card practice, students being required to give reasons for their rating. Lectures are given on the breeds of live stock best adapted to Utah conditions; the fundamental laws of breeding; selection of live stock; feeding and management. Required of all first year students in Agriculture. Daily, during the second term, at 9:00.

2. BREEDING. This course includes a study of the laws of heredity, correlation, reversion, variation, and fecundity, and of the methods of breeding, cross-breeding, in-and-in breeding, and selection. These laws are practically illustrated by their application to the improvement of the live-stock on the farm. Practical work is given in the study of herd books, tabulation of pedigrees, and such other exercises as enable the students to learn the value of a pedigree, and how to keep the records of any breeding herd. The crops, live-stock, and poultry on the College farm are available for study and illustration. Elective to juniors in Agriculture. Two hours a week during the first term.

3. BREEDS OF LIVE STOCK. The object of this course is to study the different breeds of horses, cattle, sheep, and swine for the purpose of learning their qualities, characteristics, and adaptabilities. Required of seniors in Agriculture. Two hours a week during the first term.

4. STOCK FEEDING. This is a study of the principles underlying the profitable feeding of animals; the composition of plants, animals, and animal products. A study is made of the practices which give best results, as indicated by available data, gathered from the work of experiment stations in this and other countries. Special attention is devoted to the study of Utah conditions in the handling of live-stock. The hygiene, care, and management necessary to successful feeding are also studied. In connection

with this course, the live-stock, farm buildings, and other equipment are available for practice and advanced study. Required of seniors in Agriculture. Three hours a week during the second term.

5. DAIRYING. Required of all third year students in Agriculture. Three hours a week during the first term. T., Th., S., at 12:20.

(a) *Milk.* This course includes a thorough study of the methods used in testing, buying, and preserving milk for food or manufacturing purposes. The farm problem of milk production is studied in connection with the management of dairy cows.

(b) *Butter.* Factory and hand methods in butter production, creaming of milk by different methods, handling and ripening cream, churning, salting, working, packing, and marketing are studied. The work of the class room is illustrated and applied in the College dairy.

(c) *Cheese.* The process of Cheddar cheesemaking is emphasized. The principles and practice necessary to make a uniform product and to overcome characteristic difficulties are described and illustrated in the class room and dairy. The methods of manufacture of other kinds of cheese, particularly of such kinds as may be made at the home dairy, are also studied.

6. ADVANCED DAIRYING. This course consists of a study of special dairy problems, and of experimental work in handling dairy products. Elective to students who have completed Course 5, and Bacteriology. Three hours a week during the second term.

7. POULTRY CULTURE. This course includes a study of breeds and breeding, feeding and management, buildings and appliances, natural and artificial incubation, diseases, and practice in judging. Required of first year students in Agriculture. Four hours a week during the last four weeks of the second term. T., Th., S., at 9:00.

To those wishing to specialize in Poultry Culture, opportunity will be given to assist in experimental work and record observations on the same.

VETERINARY SCIENCE.

1. VETERINARY ELEMENTS. The aim of this course is to teach the student how to take care of sick animals, and how to diagnose and treat ailments common to farm animals,—as colic, milk fever, distemper, sweeney, lameness, etc. A careful study is made of contagious diseases and their control, with much emphasis laid on sanitation. This subject is taught by lectures and text books and is illustrated by observation and practice of the free clinics. Required of all third year students in Agriculture. Three hours a week during the second term. T., Th., S., at 11:30.

2. VETERINARY ANATOMY. This subject is taught in part by lectures and is illustrated by charts, skeletons, etc. During the term post-mortems are held and such dissection done as time will permit. Required of students electing Animal Industry as a major. Four hours a week during the second term of the junior year.

3. VETERINARY MEDICINE: This subject includes therapeutics and materia medica. Students are instructed in the compounding and administering of medicines. The course must be preceded by Veterinary Science 1. Finlay Dun's *Materia Medica* is used as a text book. Required of students who elect Animal Industry as a major. Four hours a week during the first term of the senior year.

4. THE FREE CLINIC. Every Monday during the second term, clinics are held to which diseased animals are brought for free treatment. Students are required to assist in the work and perform such operations as they are prepared for. Required of students taking any of the courses in Veterinary Science.

HORTICULTURE.

1. PROPAGATION AND CARE OF PLANTS. During the first term's work, *Principles of Plant Culture,* by Goff, is used as a guide in the study of the principles underlying an intelligent understanding of the care, growth, and development of orchard and

garden plants and trees. Instruction is also given in propagation, —by breeding, budding, grafting, layering, and by cuttings.—and in the management of hot-beds and forcing houses. The special requirements of the different vegetables both in garden and in forcing house are discussed. Required of freshmen in Agriculture. Three hours a week during the first term. T., Th., S., at 10:40.

2. POMOLOGY. The object of this course is to give the student a thorough knowledge of the theory and practice of fruit culture. The work begins with the origin of our cultivated fruits and their methods of propagation. Next follows the study of location, of planting, and of profitable varieties for orchards and fruit plantations. The general care and management are taken up, including the subjects of cultivation, pruning, irrigation, and the treatment of insects and fungous diseases. Practice will be given in the classification and indentification of fruits. Besides the lectures and class room work, the students will be given practical orchard demonstrations and nursery practice, and will be required to propagate all varieties of fruits. All plants so produced become the property of the student. Reference works: *American Fruit Culturist*—Thomas; *Principles of Fruit Growing*—Bailey; *Book Fruits*—Card. Required of juniors in Agriculture who elect Horticulture as a major. Three hours a week during the first term.

3. OLERICULTURE. This course treats of the origin, history, and botanical relations of garden vegetables. From an economic standpoint, a careful study is made of the location of gardens, the requisites of soil, fertilizers, and general cultivation. Study will be made of special garden crops for market purposes. Instruction will be given in the forcing of early and tender vegetables and in the making and management of hot-beds and cold frames. Reference Works: *Vegetable Gardening*—Green; *Principles of Vegetable Gardening*—Bailey. Required of juniors in agriculture who elect Horticulture as a major. Two hours a week during the second term.

4a. FLORICULTURE. (Conservatory Work.) This deals with the care and management of ornamental plants under glass,

and of those used for bedding designs. Instruction is given in the propagation of foliage and flowering plants; management of tropical plants; potting, transplanting, and resting of plants; and, in general, greenhouse management. Students are required to name and propagate all varieties of plants in the College conservatories, the plants so produced becoming the property of the students. Reference Works: *Nursery Book*—Bailey; *Practical Floriculture*—Henderson; *Greenhouse Management*—Taft. For juniors in Agriculture who elect Horticulture as a major. Three hours a week during the second term.

4b. HOME FLORICULTURE. This course consists of a study of the more hardy household and garden plants with reference to their use for home adornment. Instructions are given in the making of soil and the potting and transplanting of house plants. A study is made of the use of bulbous plants for windows and garden borders. Practice is given in the starting of slips and cuttings, and in the trimming and training of plants. Reference Work: Vick's *Home Floriculture*. Required of sophomore students in the Domestic Science Course. Two hours a week during the second term. W., F., at 9:00.

5. LANDSCAPE GARDENING. The study of the principles of ornamental gardening; planning of lawns and grounds; making of lawns; laying out of walks and drives; use of ornamental trees and flowering shrubs; designing of beds and borders; grouping of shrubbery; use of bulbous plants and hardy herbaceous perennials; beautifying of home grounds. Students, on completion of this course, must be familiar with all trees, shrubs and plants used on the College lawns and campus. Reference Work: *Principles of Landscape Gardening*—Waugh. For senior students who elect Horticulture as a major. Two hours a week during the first term.

6. FORESTRY. The study of trees under forest conditions, trees in relation to altitude, humidity, temperature and winds; forest distribution in relation to soil and environment; methods of forestry propagation and management; windbreaks, shelterbelts and forestry plantations; forest products; study of the trees

and shrubs of Utah. Reference Works: *Forestry of Minnesota* —Green; *First Book of Forestry*—Roth. For senior students who elect Horticulture as a major. Two hours a week during the second term.

DOMESTIC SCIENCE AND ARTS.

PROFESSOR COTEY.
MRS. COOK.
MISS LYDIA HOLMGREN.
MISS MORRELL.
MISS QUAYLE.
MISS THOMAS.

HOUSEHOLD SCIENCE.

1. LAUNDERING. The work consists of practice alternating with lectures. The practice includes plain white washing and removing stains; clear starching; best methods of doing up fine mull; ironing shirts, cuffs, and collars; washing flannels; and cleaning silk and fine woolen goods. The lectures treat of the chemistry of the various materials used, and of hard waters and the process of softening them. Soaps, washing fluids, bleaching powders, bluings, and starch, are discussed in their scientific and practical relations to laundry work. Required of second year students in the Domestic Science Course, and in the Manual Training Course in Domestic Arts. Four hours a week during the first third of the year. T., Th., from 2:00 to 3:40.

2. COOKING I. The student receives instruction in selecting different cuts of meats, and in the methods of cooking best adapted to them. Practice is given in roasting, braizing, and boiling, and in stews and pot roasts; in preparing fowls for cooking, and in making dressings; in boning, larding, and skewering; in

making croquets, scallops, etc. Instruction is given in preparing soup stocks, in making cream soups, vegetable soups, and purees. Students are taught to prepare sauces suited to different kinds of meats and to make various meat pies, dumplings for stews, and noodles for soups. Required of second year students in the Manual Training Course in Domestic Arts. Five hours a week during the second third of the year. Daily, at 12:20.

3. COOKING II. Instruction is given in the making of various kinds of yeast,—salt rising, wet and dry yeast; white and graham bread, corn bread, Boston brown bread; many varieties of rolls and buns. This work includes lessons in making baking powder and in making a great variety of the breakfast breads in which it is used: biscuits, muffins, gems, Johnny cake, pancakes, and waffles. Part of the term is devoted to plain pastry cooking. Required of second year students in the Manual Training Course in Domestic Arts. Six hours a week during the last third of the year. T., Th., S., from 2:00 to 3:40.

4. COOKING III. Practice is given in making a variety of layer and loaf cakes, sponges, cream puffs, cookies, jumbles and fancy cakes, plain pastry, puff paste, tarts, patties, etc. The student is also given practice in a great variety of baked, boiled, and steamed puddings; custards, blancmanges, whips, creams, jellies, etc. Instruction is given in laying tables for dinner and lunch parties, and in waiting on tables. A few lessons are given in making taffy and sugar candies with French cream fondant. Students are instructed in the use of the chafing dish, and a few lessons are given in camp cooking. The work includes instruction in cooking vegetables and serving dinners during both winter terms. Required of third year students in the Manual Training Course in Domestic Arts. Four hours a week during the last two-thirds of the year. W., F., from 2:00 to 3:40.

5 FRUIT WORK. This includes canning by various methods, and making all kinds of preserves and marmalade; different methods of making jellies, and experiments with green and ripe fruits; the making of all kinds of ketchups, spiced fruits, sweet

and sour pickles, table sauces and meat relishes; the preparing of fruit juices, cordials and syrups. The latter part of the term's work is a course of lectures on the chemical nature of fruit, its acids and sugars; the value of fruit as food, and its action on the human system; the causes of fruit fermentation, and a study of antiseptics. Young women doing this work are required to make use of reference books in the library, and to write essays upon the food value of fruit. Required of third year students in the Domestic Science Course, and in the Manual Training Course in Domestic Arts. Four hours a week during the first third of the year. W., F., from 2:00 to 3:40.

6. FOODS. Foods are studied as to their sources, processes of manufacture, conditions in which they are found in the market, and methods of cooking best adapted to each. Talks are given on marketing and the selection of foods, and their care before cooking. Sanitary conditions of the kitchen and store rooms are discussed. General rules of measuring and mixing food materials and their proper proportions and combination are taught, along with the best methods of baking and boiling, deep and shallow frying, and carving and serving food. The principles taught in the class are put into practice by each student in the kitchen. Required of second year students in the Manual Training Course in Domestic Arts. Five hours a week throughout the year. Daily, at 9:00.

7. SANITATION AND HYGIENE. The lectures on these subjects treat of sanitary conditions about the home; dangers from damp and unclean cellars, foul drains and sinks; ventilation, heating and lighting; instructions especially necessary to women on the care of personal health; home nursing, with illustrative lessons on changing beds for the sick. Required of third year students in the Manual Training Course in Domestic Arts. Three hours a week throughout the year. T., W., F., at 10:40.

8. HYGIENE, HOME NURSING, AND FIRST AIDS TO INJURED. These subjects are taught by lectures and enforced by illustrations, with references to such authorities as Park, Wilson, Nightingale,

Stoney, Hampton, Shaw, Canfield, and Stockholm. Required of third year students in the Domestic Science Course. Five hours a week during the first third of the year. Daily, at 9:50.

9. THEORY OF COOKING. The purpose of this course is to give instruction in the best methods of selecting, preserving, and cooking all common food materials. All principles learned in the class room are demonstrated in the kitchen. William's *Chemistry of Cookery,* Richard's *Chemistry of Cooking*, and various bulletins issued by the United States Government are used as texts. Required of third year students in the Domestic Science Course. Five hours a week during the second third of the year. Daily at 9:50.

10. COOKING IV. This course includes all kinds of plain and some fancy cooking, and covers in a general way all the subjects with which a housekeeper in moderate circumstances needs to be familiar. Demonstration lessons are given at various times throughout the term, on subjects difficult of treatment in the general practice. Chafing dish cookery will be taught and a few lessons in camp cooking given. A three-course lunch is served daily during the winter months. Members of the class take turns in presiding as hostess at the table, carving and serving plates, and looking after the needs of the guests; they also take turns in waiting upon the table. The confidence and skill thus acquired are invaluable to them. Required of third year students in the Domestic Science Course. Four hours a week during the second third of the vear. W., F., from 2:00 to 3:40.

11. THE SCIENCE OF NUTRITION. This is a study of foods, their chemical composition, characteristics, and digestibility; the way in which they nourish the body; the effect of age, climate, and occupation on the amount and kind of food required. Books on food by such authors as Yeo, Smith, Sir Henry Thompson, Green, Atkinson, Youmans, Parks, and Hoy are used for reference. Constant use is made of government bulletins on the composition and digestibility of foods. A full set of charts and bottles illustrating the composition of foods is used as an aid to the study. Required of third year students in the Domestic Science

Course. Five hours a week during the last third of the year. Daily, at 9:50.

12. DIETETICS AND INVALID COOKING. The course aims to determine the best foods to be given in diseases, with practice in their preparation and serving. The preparations of liquid diet, light diet and convalescent diet is taught as in hospital training schools. *Invalid Cooking,* by Mary Boland; *Food in Diseases,* by Yeo; *How to Feed the Sick,* by Dr. Gatchell, and other similar works, are used as texts. Required of third year students in the Domestic Science Course. Four hours a week during the last third of the year. W., F., from 2:00 to 3:40.

13. SANITATION. The course embraces a study of the conditions necessary to a healthful home—fresh air, pure water, heating, lighting, and drainage. *Household Sanitation,* issued by the Collegiate Alumni Association, is used as a text book, together with the *Sanitarian.* Reports of various boards of health are used as reference books. Required of seniors in the Domestic Science Course; elective to others who have had Course 12. Five hours a week during the first term. Daily, at 11:30.

14. HOUSEHOLD ECONOMICS. Lectures are given on the convenient arrangement and economical furnishing of rooms; the best methods of doing all kinds of housework, with a view to economy of time and strength; the duties of mistress and servants; the entertainment of guests; and many other subjects of interest to the home-maker. Books by prominent writers on these subjects, and a number of periodicals of especial value to students of the class, are found in the library. Required of seniors in the Domestic Science Course. Five hours a week during the second term. Daily, at 11:30.

Additional courses in practical cooking will be arranged for students who wish to devote more time to that subject than is allowed in the regular courses.

SEWING.

1. HAND AND MACHINE MODELS. During the first term of the first year, in the Manual Training Course, the student makes

a set of models, covering the full course in hand sewing, involving practice in basting, overcasting, back stitching, hemming, felling, gathering and stroking gathers, gussets, buttonholes, loops, eyelets, patching, darning, blanket stitch, slip stitch, chain stitch, French hem, French seam, etc. Instruction is given in the care and use of various machines. Regular practice is given in running, hemming, felling, gathering, puffing, tucking, quilting, etc. Talks are given on the position of the body and care of the eyes while sewing, on color, and on the nature and manufacture of materials used. During the second term, drawers, skirt and underwaists are cut and made. The student is taught to cut from patterns made according to the system used throughout the course, and to fit and finish a dress of washable material; also to cut, fit, and finish one shirtwaist. Required of first year students in the Manual Training Course in Domestic Arts. Ten hours a week throughout the year. Daily, from 9:50 to 11:30.

2. (a) *Dressmaking.* This course includes draughting from measurements patterns for waists, skirts, sleeves, etc.; practice in cutting and basting; also cutting, fitting, and finishing a worsted dress and fancy waist.

(b) *Designing, Cutting, and Fitting.* Instruction is given by talks on grace in design of costume, and harmony of color. Further practice is given in cutting and fitting. Required of second year students in the Manual Training Course in Domestic Arts. Eleven hours a week throughout the year. Daily, at 12:20, and W. F. S., from 2:00 to 3:40.

3. ADVANCED DRESSMAKING. Further work is done in practical costume making, cutting, basting, fitting, pressing, trimming, and finishing. Draughting from measurements patterns for waists, skirts, sleeves, princess gowns, jackets, coats, etc., forms a large part of the work. Required of third year students in the Manual Training Course in Domestic Arts. Ten hours a week during the first term. Daily, from 9:00 to 10:40.

4. FANCY WORK. This consists of hemstitching, drawn work, Kensington embroidery, Roman cut work, Spanish laid work,

jeweled embroidery, Bulgarian embroidery, and modern lace making. Required of third year students in the Manual Training Course in Domestic Arts. Ten hours a week during the second term. Daily, from 9:00 to 10:40.

5. HAND STITCHES. During the first part of the first year, the student makes a set of models, covering the full course in hand sewing, and involving practice in basting, overhanding, overcasting, backstitching, hemming, felling, gathering and stroking gathers, gussets, buttonholes, loops, eyelets, patching, darning, blanket stitch, slip stitch, blind stitch, herring bone stitch, feather stitch, chain stitch, French hem, French seam, etc. Talks are given on the position of the body and care of the eyes while sewing, on color, and on the nature and manufacture of materials used. Required of first year students in the Domestic Science Course. Five hours a week during the first term. Daily, at 9:00.

6. MACHINE WORK. The student is taught the use and care of various machines. Regular practice is given in running, hemming, felling, gathering, puffing, tucking, quilting, etc. Drawers, skirt, and underwaist are cut and made. Required of first year students in the Domestic Science Course. Five hours a week during the second term. Daily, at 9:00.

7. MACHINE WORK. The students are taught to adapt and use patterns; to cut, fit, and finish a dress of washable material; and to cut, fit, hang, and finish one lined skirt of worsted material. Required of second year students in Domestic Science. Four hours a week during the first twelve weeks of the first term, —W. S., from 2:00 to 3:40; and six hours a week during the next six weeks,—W., Th., S., from 2:00 to 3:40.

8. DRESSMAKING. This course includes plain draughting from measurements, practice in cutting and basting, and cutting, fitting, and finishing one fancy waist. Required of second year students in Domestic Science. Six hours a week during the second term. W., Th., S., from 2:00 to 3:40.

COMMERCE.

PROFESSOR BEXELL.
PROFESSOR ENGLE.
PROFESSOR ROBINSON.
MR. BANKHEAD.
MR. JENSEN.
MR. STEPHENS.

SEMINAR. Each candidate for a degree is expected to undertake a Seminar in his senior year. In this connection the student is expected to select some phase of business in which he is particularly interested. The selection should be made before May 1st of his junior year. Throughout his senior year, the student is expected to devote special study to this particular business. This course is necessarily one of research and investigation. The major in which the student registers determines the character of the Seminar. The credit given is two hours.

POLITICAL ECONOMY.

I. General Courses.

1. ECONOMICS I. Discussion of wealth, nature and requisites of production, diminishing return from natural agents, labor and its increase, effciency of production, credit, interest, wages, the industrial manager, prices, rent, socialism, taxation, the national debt, free trade, protection, bimetallism, United States notes, banking, the National Banking System, the labor problem, and co-operation. Laughlin's *Political Economy*. Required in the third year of all Commercial courses. Three hours a week throughout the year. T., Th., S., at 9:00.

2. ECONOMICS II. Three main purposes are kept in view in this course: a clear analysis of the mechanism and functions of

industrial society; a fundamental discussion of wealth and monopoly—their origin, uses, and abuses; a dispassionate discussion of economic questions that have become political questions. Much reading and many theses are required. Bullock's *Introduction to Economics* and the *Ashley Series*. Required of seniors in all college courses except Commerce and General Science. Three hours a week throughout the year.

3. SOCIOLOGY. The main topics treated are the subject matter of sociology, relation of sociology to other subjects, sociology as a science, division of sociology, society regarded as a contract, society as an organism, physical basis of society, association, meaning of association, the social mind, causes of social activity, industrial organization of society, the family, the state, the individual, external description of social development, processes of social development, the natural selection of human society. The texts are Gidding's *Principles of Sociology* and Fairbank's *Introduction to Society*. Elective in junior and senior years. Two hours a week throughout the year.

II. Banking.

1a. MONEY. Money as a commodity, coinage, legal tender, gold standard, International Monetary Conferences, Colonial bills of credit, Revolutionary bills of credit, greenbacks, Confederate currency, silver dollars, panic of 1893, present conditions, etc. Required of sophomores in the Commercial Course. Five hours a week. First half of the first term.

1b. BANKING. Functions of a bank, the clearing house system, early American banks, the Bank War, the Safety Fund Bank, the national bank system, state banks, savings banks, loan and trust companies, present problems, etc. Required of sophomores in the Commercial Course. Five hours a week during the second half of the first term.

2. CLEARING HOUSES. Classes, terms, functions and administration of Clearing Houses, exchanges, loans, certificates, etc.,

together with the history and characteristics of Clearing Houses in New York, Philadelphia, Boston, Chicago, London, Japan, and Utah. Given in alternate years. Elective to students who have completed Banking 1. To be followed by Finance 3. Two hours a week during the first term. One hour's credit.

III. Finance.

1a. FUNDING OPERATIONS AND CORPORATION FINANCE. Money funds and credit, obtaining funds by inheritance, exchange, sales of commercial credit, long time paper, etc. Funding operations by the United States Treasury, the savings bank, building and loan associations, commercial banks, trust companies, brokers, and insurance companies. The general practice in funding corporations and other large business enterprises. Required of sophomores in the Commercial Course. Five hours a week during the first half of the second term. Daily, at 9:50.

1b. THEORY AND PRACTICE IN PUBLIC FINANCE. History of financial systems, theories of public expenditures, various methods and practices of taxation, and other sources of income, public credit, relation of our Federal Treasury to our monetary system. Required of sophomores in the Commercial Course. Five hours a week during the second half of the second term. Daily, at 9:50.

NOTE.—In 1903-4, Finance 1a and 1b will run five hours a week until holidays. Two hour's credit. To be followed by Finance 2a, 2b, and 2c.

2a. COMMERCIAL ORGANIZATIONS. Business men's associations, manufacturers' associations, commercial clubs, boards of trade, various stock exchanges, clearing houses, etc. The methods of business and extensive influence of these organizations. This course is principally research work to determine best methods of procedure in establishing large business enterprises and manipulating large amounts of stock and capital. To be followed by Finance 2b. Elective to students who have completed Finance 1. Three hours a week.

2b. TRUSTS AND MONOPOLIES. A general research course in studying the present business and financial practices of monopolies, combinations and trusts, with a view of determining the cause and effect of the evils, and also of the virtues of such organizations. Should be preceded by Finance 2a and followed by Finance 2c. Three hours a week.

2c. DEPRESSIONS, PANICS AND CRISES. Causes and indications of prosperity and depression, prevention of crises and remedies when they occur, history of crises and depressions in the United States, study of the best methods of business practice in prosperity or depression. Should follow Finance 2b. Three hours a week.

NOTE—In 1903-4, Finance 2a, b, and c, following Finance 1a and 1b, will begin after holidays and run until the last of the year. Three hours' credit.

3. FINANCIAL CENTERS. Evolution of Wall Street, the stock market, value of prices, listing of securities, the New York Stock Exchange and Clearing House, tools of Wall Street, language of Wall Street, investment business, Sub-Treasury and Assay Office, foreign exchange and balance of trade, bankers' syndicates, bucket shops, manipulators of corners, etc. Comparative study of similar financial centers in London, Paris, Berlin, Japan and the Intermountain region. To follow Banking 2. Given in alternate years. Elective to students who have completed Finance 1. Two hours a week during the second term. One hour's credit.

4a. HISTORY OF FINANCE. A brief survey of financial history to 1865. Study of the inflation period, struggle for resumption of specie payment, the silver problem, the surplus revenue of 1888, the two laws of 1890, the expulsion of gold, the panic of 1893, government loans and tariff of 1894, bond syndicate operations, the present financial situation. To be followed by Finance 4b. Elective. Two hours a week in alternate years.

4b. SECURITIES, INVESTMENTS AND SPECULATIONS. A general study of the stock markets of the world, together with present

indications in private and public finance. Intended primarily for a final survey of the financial situation. To be preceded by Finance 4a. Elective. Two hours a week in alternate years.

5. SEMINAR. This Seminar is required of all students who take a degree in Commerce with Banking and Finance as their major. The student devotes special attention to studying a definite phase of banking, finance, or business management. See description of Seminars.

IV. Industry.

(Producton and Manufacture.)

1. COMMERCIAL GEOGRAPHY AND MATERIALS OF COMMERCE. The main topic treated are: basis of the work, natural conditions affecting commerce, human control of commerce, transportation and commercial routes. There is a discussion of the leading countries of the world under the following heads: climate, natural features, distribution of leading products, vegetable food products, vegetable and animal fibres, wood crop, minerals, manufacture, agriculture, distribution, necessities and advantages, freight rates, seaports, railroads, canals, trade tendencies, brief historical summaries, causes for shifting of trade centers, present trade tendencies and new regions now being opened, navigation, ocean routes, and such collateral topics as may be necessary to supplement the work outlined.

This course presupposes a fair knowledge of mathematical and political geography, and a minimum knowledge of general history. Required of all Commercial students in the second year. Two hours a week throughout the year. W., F., at 9:50.

2a. PRODUCTION AND MANUFACTURE I. This course deals with the comparative and extensive sides of the subject. There is a brief survey of latent commercial possibilities, as follows: surface indications, unexplored regions, probable demands upon the earth through future inventions, possible outcome of inhos-

pitable regions and of desert areas, effect of known latent resources upon the expectations and policies of mankind. Present resources of leading nations are then considered, together with their influence upon trade routes. There follows a discussion of competing economic systems, past and present, and of the relation of social and political development of industrial mechanisms. Five hours a week until holidays. To be followed by Industry 2b.

2b. PRODUCTION AND MANUFACTURE II. This is the intensive course, concerned with direct and indirect production. There is a careful study of the productive and manufacturing processes through which such representative commodities as wheat, cotton, sugar beets, tobacco and lumber pass in going from the producer to the consumer. The work in indirect production considers cotton and woolen goods, steel, boots and shoes, etc. To follow Industry 2a and continue from holidays to the end of the College year. Four hours a week.

Courses 2a and 2b are required of candidates for a degree in Commerce with "Production and Manufacture" as a major. Elective to others. Must be completed in the junior year.

3. SEMINAR. This Seminar is required of all students who take a degree in Commerce with "Production and Manufacture" as their major. The student devotes special attention to some phase of Production and Manufacture. See description of Seminars.

V. Commerce.

1. HISTORY OF COMMERCE. The development of commerce in Egypt, Greece, Rome, Florence, Medieval Europe, etc., down to and including the commercial nations of modern times. Special attention is given to materials and machinery of commerce, to trade routes, and to the relations between commercial developments and other branches of the history of civilization. Required of third year students in the Commercial Course. Five hours a week until holidays. T., Th., S., at 2:00.

2a. MERCHANDISING. A practical study of business methods, treatment of retailing, wholesaling, commission business, jobbing, etc. To be followed by Commerce 2b. Five hours a week.

2b. DOMESTIC TRADE. This course considers self-sustaining and dependent localities and their products, together with the exchange of products, and its causes and results. To follow Commerce 2a. Five hours a week.

2c. TRANSPORTATION AND COMMUNICATION. Railroads, canals, lakes, rivers, oceans, etc. Telegraphs, telephones, cables, wireless telegraphy, mails, etc. To follow Commerce 2b and precede Commerce 2d. Five hours a week.

2d. FOREIGN COMMERCE. Our surplus, foreign needs, consular service, expense of marketing, reciprocity, tariffs, etc. To follow Commerce 2c.

Courses 2a, b, c, d, together extend through one year, and are required of all candidates for degrees in Commerce with "Commerce and Transportation" as their major. Elective to others.

3. SEMINAR. This Seminar is required of all students who take degrees in Commerce with "Commerce and Transportation" as their major. The student devotes special attention to some definite phase of Commerce and Transportation. See description of Seminars.

POLITICAL SCIENCE.

1. BUSINESS LAW. A study of the nature of law, the law merchant, the common law, contracts, agency, bailments, bankruptcy and insolvency, insurance, negotiable papers, partnership, corporations, property, sales, etc. Required in the second year of the three year Commercial Course. Two hours a week throughout the year. W., F., at 12:20.

2a. LAWS OF CONTRACTS. Formation of contracts; dealing with offer and acceptance, form and consideration, capacity of

parties, reality of consent, and legality of object. Operation of contracts, including limits of contractual obligations and assignment. Interpretation, rules of evidence, and rules of construction. Discharge of contracts; by agreement, performance, breach, impossibility of performance, and operation of law. Required of sophomores in the Commercial Course. Three hours a week during the first half of the first term.

2b. LAWS OF BILLS AND NOTES. Maker's, acceptor's, drawer's and indorser's contracts; proceedings before, upon, and after dishonor; accommodation paper; guarantor and surety; holder's position; defense, equities, etc. Required of sophomores in the Commercial Course. Three hours a week during the second half of the first term.

2c. CORPORATION LAW. Kinds, formation, powers, liabilities, ownership, shares, subscriptions, calls, notice, transfers, management, officers, directors, contractual powers, dividends, dissolution, etc. Required of sophomores in the Commercial Course. Three hours a week for the first half of the second term.

2d. PARTNERSHIP LAW. Formation of partnerships, essentials, liabilities of members, capital, profits, good will, individual and firm property, agency of partners, usage, majority, torts of partners, dissolution, winding up, priority, distribution, etc. Required of Sophomores in the Commercial Course. Three hours a week for the second half of the second term.

Political Science 2a, b, c, and d, follow each other and constitute a three hour course throughout the sophomore year.

3. CONSTITUTIONAL LAW. The Constitution; the rise of the American Union; distribution and powers of the government; the powers of Congress; powers of the executive; the judicial department; checks and balances of governments; government of the territory; the admission of new states; amendments to the Constitution; civil rights and their guarantees; protection of persons accused of crime; protection of contracts and property, etc. Required in the third year of the Commercial Course. Three hours a week, beginning after holidays and running through the second term. T., Th., S., at 2:00.

4. COMPARATIVE STUDY OF GOVERNMENTS. A comparative study of the various systems of government; Greece, Rome, Great Britain, Germany, France, Switzerland, United States, etc. Elective. Two hours a week during the first term.

5. INTERNATIONAL LAW. Persons concerned, rights and duties of states, territorial jurisdiction, jurisdiction on high seas, agents of the state, nationality, treaties, settlement of disputes, war and its effects, military occupation, hostilities, neutrality, contraband, blockade, etc. Required of candidates for a degree in Commerce with "Commerce and Transportation" as a major. Elective to others. Two hours a week during the second term. One hour credit.

7. COMMERCIAL LAW. During 1903-4 the course known in the catalogue of 1902-3 as Commercial Law will be given for the benefit of students who have completed the second year in the Commercial Course. Three hours a week throughout the year. T., Th., S., at 12:20.

ACCOUNTING.

1a. COMMERCIAL CALCULATION. A general review of fundamental processes of arithmetic. There is much drill in addition, subtraction, fractions, decimals, percentage, interest, discount, partial payments, use of interest tables, etc. Required of all first year students in the Commercial Course. Two hours a week during the first erm. W., F., at 9:50.

1b. COMMERCIAL PAPERS. Practice in penmanship and the writing of notes, drafts, checks, bills of exchange, deeds, mortgages, and other legal forms. Required of all first year students in the Commercial Course. Two hours a week through the first half of the second term. W., F., at 9:50.

1c. BUSINESS FORMS AND CORRESPONDENCE. Continued practice in penmanship, in writing letters, and in making out bills, invoices, receipts, bills of lading, etc. Required of all first year

students in the Commercial Course. Two hours a week through the second half of the second term. W., F., at 9:50.

2a. BOOKKEEPING. Theory of debits and credits, and use of journal, ledger, cash-book, and other books, and various rulings, including vouchers. Required of second year students who specialize in "Bookkeeping," and of third year students who specialize in "Stenography." Two hours daily throughout the year.

2b. INTER-COMMUNICATION BUSINESS. This is a course in business practice, where the students of Accounting 2a and 3a not only do the bookkeeping work, but also carry on inter-communication business with their fellow students. Excellent drill is given in retail, wholesale, and commission business, and in the work of the station agent, insurance agent, real estate agent, telegraph operator, telephone operator, etc. This course is given in connection with Accounting 2a, and may extend to Accounting 3a and 3b. It requires no additional time, cannot be separated from these courses, and is required when they are taken.

3a. CORPORATION ACCOUNTING. A practical application of previous courses in accounting as applied to corporation business and accounting. Manufacturing, railroading and merchandising receive special attention. Required of third year students who specialize in "Bookkeeping." Two hours daily for the first term.

3b. BANK ACCOUNTING AND AUDITING. A thorough study in bank accounting and bank business, followed by practice in accounting, auditing and examining. Required of third year students who specialize in "Bookkeeping." Two hours daily during the second term.

3c. OFFICE PRACTICE IN BANKING. This course is similar to Accounting 2b, except that it emphasizes the work in banking and is given chiefly in connection with Accounting 3b.

4. PUBLIC ACCOUNTING. A general course in analyzing the accounts of various typical concerns in connection with the reference book course along similar lines. Emphasis is given to such accounts as usually necessitate expert accounting and public

auditing; namely, those of large corporations, including department stores, manufacturing concerns, railroads, street railways, municipal corporations, gas and electric lighting companies, etc. Required of all candidates for a degree in Commerce with "Accounting and Auditing" as a major. Elective to others after Accounting 3. Two hours a week throughout the year in alternate years.

5. SEMINAR. Expert work in auditing the accounts of various books in the Business Practice Department. There is also research work along the line of public and expert accounting, as it is practiced in connection with large corporations and large city accountants' offices. Continues throughout the senior year. Two hours credit. Required of all students who take a degree in Commerce with "Accounting and Auditing" as a major. Elective in all other Commercial courses after Accounting 4.

6. BOOKKEEPING II. During the year 1903-4, the course which was known in the catalogue of 1902-3 as Bookkeeping II will be given for second year students. Ten hours a week throughout the year. Daily, from 2:00 to 3:40.

7. BOOKKEEPING III. During the year 1903-4, the course which was known in the catalogue of 1902-3 as Bookkeeping III will be given in a condensed form for third year students. Five hours a week throughout the year. Daily, at 2:50.

8. BUSINESS CUSTOMS. During the year 1903-4, the course which was known in the catalogue of 1902-3 as Business Customs will be given as there described. Thereafter it will be given in connection with Accounting 1b and 1c, with another hour of lecture work on Farm Accounting, etc. Three hours a week during the second term, for Agricultural students. T., Th., S., at 10:40.

9. OFFICE PRACTICE. During the year 1903-4, students who pursued Bookkeeping III in 1902-3 will take a special course in Office Practice. Daily, at 2:50.

STENOGRAPHY AND TYPEWRITING.

I. Stenography.

1a. THEORY AND PRACTICE IN GREGG SHORTHAND. The study and completion of the text, supplementary dictation, and transcribing on the typewriter. Required of second year students who specialize in "Stenography" electing Gregg Shorthand. Two hours daily during the first term, from 2:00 to 3:40.

1b. PRACTICE IN GREGG STENOGRAPHY. Practical work from the Manual. Dictation by Director of the department and other members of the faculty. Practice in various legal forms, commercial correspondence, etc., and transcribing on the typewriter. Required of second year students who specialize in "Stenography" electing Gregg Shorthand. Two hours daily during the second term, 2:00 to 3:40.

2a. THEORY AND PRACTICE IN GRAHAM SHORTHAND. The study and completion of the text. Required of second year students who specialize in "Stenography" electing Graham Shorthand. Two hours daily during the first term.

2b. PRACTICE IN GRAHAM STENOGRAPHY. Practice in dictation by teacher, Director and other members of the faculty; also general practice in legal forms and commercial correspondence. All work is transcribed on the typewriter. Required of second year students who specialize in "Stenography," electing Graham Shorthand. Two hours daily during the second term.

3. THEORY AND PRACTICE IN REPORTING. Drill in rapid dictation; study of public meetings and court procedure; reporting of public meetings and trials in Logan and vicinity. Hours and credit arranged according to ability, time devoted, and plans of student.

4. STENOGRAPHY II. During the year 1903-4, the course that was known in the catalogue of 1902-3 as Stenography II will be given for those students who have completed Stenography I prior to September, 1903. Two hours a week. W., F., at 12 20.

II. Typewriting.

1a. THEORY AND PRACTICE IN TYPEWRITING. Beginning with simple exercises, the student learns correct fingering and other manipulation of the typewriter. A rigid course in spelling is given throughout courses 1a and 1b. Much practice is assigned between recitations. The department is equipped with twenty-four of the best machines; namely, Hammond, Remington, Underwood, Smith Premier, etc. Required of first year students in the Commercial Course. One hour a week during the first term. One section each day at 10:40.

1b. BUSINESS CORRESPONDENCE AND LEGAL FORMS. The application of Typewriting 1. Students make copies of correctly written correspondence and legal forms, and then pass to personal composition and dictation. There is much practice between recitations. Required of first year students in the Commercial Course. One hour a week during the second term. One section each day at 10:40.

2. SPEED PRACTICE AND PUBLIC TYPEWRITING. A special course for those who show special skill, and ability to write accurately and rapidly. Students receive dictation, writing the same on the typewriter. Work, hours, and credit are arranged according to ability, purpose and plans of student. This course is elective after Typewriting 1.

3. TYPEWRITING. During the year 1903-4, typewriting will be taught two hours a week for those who entered before September, 1903, and expect to earn two hours' credit. Two hours a week throughout the year, with much outside practice. Th., S., at 9:50.

TELEGRAPHY.

1. THEORY AND PRACTICE IN TELEGRAPHY. The theory and principles of telegraphy; namely, the instrument, electric currents, study of alphabet, etc., followed by a general course in commercial and railroad operating. Students arrange practice in groups and thereby acquire accuracy in sending and speed in re-

ceiving, besides familiarity with the general practice of commercial and railroad offices. Elective for those who have completed the first year's work in the College. Once a week throughout the year, with much practice.

ENGINEERING AND MECHANIC ARTS.

PROFESSOR JENSON.
PROFESSOR SWENDSEN.
ASSISTANT PROFESSOR JENSEN.
MR. HANSEN.
MR. PULLEY.
MR. WILLIAMS.
MR. BROWN.
MR. DAHLE.
MR. WANGSGARD.

ENGINEERING.

1a. MECHANICAL DRAWING I. This course is intended as a preparation for the work which follows in the courses in Engineering. It consists of a thorough drill in the elementary principles of projection, including linear perspective and the more common conventions of engineering drawing. Required of freshmen in the Engineering courses who have had Drawing I. Six hours a week throughout the year. T., Th., S., from 11:30 to 1:10.

1b. DESCRIPTIVE GEOMETRY. The representation of problems, and the solution of problems relating to geometrical magnitudes in space, including orthographic projections and development; projections of plane and solid intersections; shades and shadows; and applications to stereotomy, sheet-metal work, and other structural problems. Required of sophomores in the Engineering courses. Six hours a week throughout the year. W., F., S., from 11:30 to 1:10.

2a. ELEMENTS OF MECHANISM. This includes a consideration of the various forms of motion and its production; link motions, and their modifications as used in machinery; cam and wiper outlines; wheel trains and aggregate motions; design and construction of gear teeth; mechanism of special machinery. This subject deals with the purely geometrical relations of machinery, rather than with the form and design of articulating parts. Required of juniors in the Mechanical Engineering Course. Five hours a week during the first term. Daily, at 9:50.

2b. MACHINE DESIGN. In this course are considered the effects of the moving parts of machinery, such as the reciprocating parts of the steam engine, flywheels, governors, etc.; and the general principles of design in machinery, carrying into effect the principles of the course in mechanism combined with those of the course in applied mechanics. The theory of design is supplemented throughout by the practical design of specific parts. Required of seniors in the Mechanical Engineering Course. Two hours a week during the first term—W., F., at 11:30; four hours a week during the second term—W., F., at 11:30, W., from 2:00 to 3:40.

2c. MACHINERY. This course will afford an opportunity to apply the general principles of mechanism and machine design to a more detailed study of a particular type of machinery. The selection of the type to be studied will be left largely to the individual student. The following types are suggested: a more detailed study of steam machinery in general; locomotive construction; mining machinery; cotton and wool manufacturing machinery, etc. The work will consist of: (a) prescribed reading, (b) study of catalogues and bulletins of manufacturers, (c) draughting board designs, (d) visits of inspection to such installations as are within reach. Regular hours will be assigned for consultation with the instructor, whose function will be to aid in getting materials for study and to render such criticism and aid as will secure thorough and thoughtful work and reasonable progress. A definite scheme must be submitted and approved at the beginning of the year, and adhered to throughout the course.

The course will be arranged according to the time at the disposal of the student, with ten hours a week throughout the year as a minimum. No student will be admitted to this course who has not completed all the technical work of the regular course in Mechanical Engineering.

3a. SURVEYING I. The general methods of plane and topographic surveying, and the use, care, and adjustments of instruments. The practical work in the field receives particular attention. Raymond's *Plane Surveying*. Required of sophomores in Engineering courses and of seniors in Agriculture. Six hours a week during the first term. W., F., at 10:40, and from 2:00 to 3:40.

3b. SURVEYING II. This course deals especially with the advanced problems of city, railway, and hydrographic surveying. Raymond's *Plane Surveying* and Searles' or Trautwine's field book. Required of all sophomores in the Civil Engineering Course. Six hours a week during the second term. W., F., at 10:40, and from 2:00 to 3:40.

4a. ANALYTICAL MECHANICS. In this subject are treated the general laws of statics and dynamics as illustrated in the composition and resolution of forces, determinations of centers of gravity, moments of inertia, dynamics of a particle and of rigid bodies, friction, mechanics of fluids, and wind pressure. Required of juniors in the Engineering courses. Five hours a week during the second term. Daily, at 9:50.

4b. APPLIED MECHANICS. This course begins with a discussion of the materials of engineering and their use in engineering structures, the derivation of formulæ for stress in members, and a careful comparison with the results of experimental research in the strength of materials. This is followed by a study of stresses and strains in framed structures, analytical and graphical methods being used in all cases. These are illustrated by complete analyses of roof and bridge trusses and modern high-framed buildings. The subject is concluded with the discussions of the continuous girder, the elastic arch, and the general theory of elasticity. Required of seniors in the Engineering courses. Five hours a week throughout the year. Daily, at 9:00.

4d. HIGH FRAME BUILDING. This course will consist of a complete design of a modern high steel frame building, based upon the theory of stresses in framed structures, and upon modern practice. The instruction will consist of twelve or fifteen lectures, and an equivalent of six hours per week for one-half year in the draughting room. Students who have completed 4b are eligible.

5a. HYDRAULICS. A thorough study of the general theories of hydraulics, the flow of water through pipes, weirs, orifices and open channels, the measurement of water power, the dynamic pressure of flowing water; together with an introduction to the general theories of water power. Merriman's *Hydraulics*. Required of juniors in the Engineering courses. Three hours a week throughout the year. T., Th., S., at 10:40.

5b. IRRIGATION I. The location, design, construction, and operation of irrigation canals; design and construction of dams, reservoirs, headgates, etc.; the duty of water, subdivision systems, and other subjects relating to irrigation systems. Wilson's *Manual of Irrigation*. Required of seniors in the Civil Engineering Course. Three hours a week during the first term. T., Th., S. at 11:30.

5c. IRRIGATION II. This course deals especially with the problems in irrigation relating to the farm; the measurement and division of water, design of subdivision systems, methods of application of water. Required of seniors in the Agricultural Course who elect Agronomy as a major. Three hours a week during the second term.

5d. WATER SUPPLY AND SEWERAGE. A detailed study of the questions pertaining to public water supplies, reservoirs, filtration, distribution systems, classes of water pipes, and the design of water supply systems. The course also includes a study of the problems relating to drainage, construction and capacity of sewers, and sewerage disposal. Fanning's *Water Supply Engineering*. Required of seniors in the Civil Engineering Course. Three hours a week during the second term. T., Th., S., at 11:30.

5e. HYDRAULIC LABORATORY. This course is intended to apply the theoretical work of courses 5 a, b, c, and d, to practical problems in the measurement of water; establishment of lines and grades for canals, aqueducts, and pipes; rating of meters; making of estimates, etc. Required of seniors in the Civil Engineering Course. Four hours a week throughout the year. W., F., from 2:00 to 3:40.

6a. PATTERN MAKING AND FOUNDRY PRACTICE. This is an elementary course in making patterns of pipe fittings, groove pulleys, hangers, core boxes, etc.; followed by practice in moulding and running simple castings, including some work in core baking, annealing, etc. Required of sophomores in the Mechanical Engineering Course; open to others who have completed Carpentry 5. Ten hours a week during the second term. Daily, from 2:00 to 3:40.

6b. MACHINE WORK. This course consists of selected exercises from Courses 2 and 3 in machine work, Mechanic Arts. Required of juniors in the Mechanical Engineering Course. Six hours a week throughout the year. T., Th., S., from 2:00 to 3:40.

7a. STEAM ENGINEERING. This course begins with a consideration of the elements of a steam power plant, followed by a more detailed study of engines and boilers according to type and adaptability to different services. A careful study is made of the thermodynamics of heat engines, including refrigerating machines. Standard methods of engine and boiler testing, and modern practice in design and construction are also considered. Required of seniors in the Mechanical Engineering Course. Three hours a week throughout the year. T., Th., S., at 10:40.

7b. HEATING AND VENTILATING. This course will consist of a complete design of a modern heating and ventilating plant, according to one of the approved systems. The instruction will consist of three lectures a week for one-half of the year. An equivalent of not less than six hours a week one-half of the year in the draughting room will be required. Students who have completed 7a are eligible.

8a. HYDRAULIC MOTORS. This course deals with the general theory of hydraulic motors; the efficiency of the various leading types and their adaptability to special purposes; and the installation and operation of hydraulic power plants. Required of seniors in the Engineering courses. Three hours a week through the first term. T., Th., S., at 9:50.

8b. POWER. This course considers the sources of power; prime moves in general and their efficiencies; methods of distribution and transmission, with a careful study of losses due to friction, dissipation, etc.; power measurement, and power absorption, by various methods of working machinery; also a careful study of lubricants and their economy as such. In connection with the classroom work, laboratory experiments are made in the performance and efficiency of mechanical apparatus of various kinds, and in the efficiency of fuels, in gas analysis, etc. Tests of heating and power plants are made as opportunity is afforded. Required of seniors in the Mechanical Engineering Course. Two hours a week throughout the second term. W., F., at 9:50.

9. ROADS AND PAVEMENTS. The location, construction, and maintenance of country roads; the pavement of city streets; materials used and methods of construction. Byrne's *Highway Construction*. Required of juniors in the Civil Engineering Course. Five hours a week during the first term. Daily, at 9:50.

10. MASONRY STRUCTURES. This course includes a treatment of the materials used in masonry structures; a discussion of the theories relating to retaining walls, dams, arches, and other masonry structures. Baker's *Masonry Structures*. Required of seniors in the Civil Engineering Course. Three hours a week during the second term. T., Th., S., at 9:50.

11. ELECTRICAL TRANSMISSION OF POWER. This course consists of lectures and assigned readings on the phenomena of the elctric circuit, with sufficient study of the production of the commercial current to understand the causes of loss in a transmission line. Required of juniors in the Engineering courses. Three hours a week during the second term. W., F., S., at 12:20.

MECHANIC ARTS.

I. Carpentry.

1. (a) Rudimentary exercises in sawing, ripping, planing, mortising, dovetailing, and general joinery; and the application of these to simple articles of furniture, furnish the details of this course. Correct methods of using and handling tools are emphasized. Required of all first year students in the Manual Training Course in Mechanic Arts. Fifteen hours a week during the first term. Daily, from 9:00 to 11:30; or from 2:00 to 4:30.

(b) Sharpening and adjusting carpenter's tools, and saw filing, followed by practice in making panels, doors, and sashes, and in simple cabinet work, constitute the work of this course. Open to first year students in the Manual Training Course in Mechanic Arts. Fifteen hours a week during the second term. Daily, from 9:00 to 11:30; or from 2:00 to 4:30.

2. Open to second year students in the Manual Training Course in Mechanic Arts who have completed Course 1 (b). Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

(a) Plain cabinet making, concluding with a model carpenter's work bench. First term.

(b) Wood turning and other machine work in wood, and the construction of a standard carpenter's tool chest. Second term.

3. In this course the principles and practice gained in the foregoing courses are applied to frame house building. If possible, practice in building a regular house is given; but when such opportunity cannot be had, special parts, such as a section of wall including doors and windows, hips and valleys in roofs, etc., are built in the shops. Open to third year students in the Manual Training Course in Mechanic Arts who have completed Course 1 (b), and preferably Course 2 (a). Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

4. In this course the student is allowed to specialize in cabinet making, including carving and fitting and finishing, or in inside finishing of houses, or in special work in stair building. In whichever branch he may specialize, he is required to finish a complete design. Open to fourth year students in the Manual Training Course in Mechanic Arts who have completed Course 3. Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

5. This course consists of selected exercises from Courses 1 (a) and 2 (b). Required of all second year students in the College Preparatory Course who intend to take Engineering; also of all second year students in Agriculture. Six hours a week during the first term. T., Th., S., from 2:00 to 3:40.

II. Forging.

1. Open to second year students in the Manual Training Course in Mechanic Arts who have completed Course 1 in Carpentry. Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

(a) This course consists of preliminary exercises, such as drawing, bending, twisting, and shaping, followed by exercises in iron welding and making iron tools. Accuracy in methods and results is insisted upon. First term.

(b) The work in this course consists of practice in steel and iron welds, steel and steel welds, and general work in steel tool forging and dressing. Chisels, punches, reamers, hammers, tin shears, nippers, etc., are sample exercises. Second term. Prerequisite, Course 1 (a).

2. Open to third year students in the Manual Training Course in Mechanic Arts who have completed Course 1. Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

(a) This course consists of elementary work in horseshoeing and spring building, and in making and repairing different kinds of agricultural and other implements. First term.

(b) The work in this course consists of filing, chipping, hand fitting, polishing, and general vise work; also special forms of forging, such as wicket gates, cultivator teeth, andirons, etc.

3. The work of this course consists of practical carriage building. Open to fourth year students in the Manual Training Course in Mechanic Arts who have completed Course 2. Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

4a. The work of this course consists of selected exercises from Course 1. Required of second year students in the College Preparatory Course who intend to take Engineering. Six hours a week throughout the second term. T., Th., S., from 2:00 to 3:40.

4b. This course consists of selected exercises from Course 1a, followed by work in horse-shoeing and in repairing agricultural implements. Required of second year students in the Agricultural Course. Six hours a week during the second term. T., Th., S., from 2:00 to 3:40.

III. Machine Work.

1. This course consists of special work in filing, chipping, scraping, and hand fitting; concluding with work in forging, and in dressing and tempering machine cutters. Open to first year students in the Manual Training Course in Mechanic Arts who have completed Carpentry 1 (a). Fifteen hours a week during the second term. Daily, from 2:00 to 4:30.

2. Open to second year students in the Manual Training Course in Mechanic Arts who have completed Course 1. Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

(a) This course consists of preliminary exercises in straight and taper turning, drilling, planing, and milling, accompanied by instruction in the care and use of machinery. First term.

(b) The work of this course consists of boring and chucking in the lathe, thread cutting, polishing, etc., and such other

exercises on other machines as will be required in making shaft couplings, tap wrenches, etc. Second term.

3. Open to third year students in the Manual Training Course in Mechanic Arts who have completed Course 2. Fifteen hours a week throughout the year. Daily, from 2:00 to 4:30.

(a) The work of this course consists chiefly of making taps, spiral drills, fluted reamers, and mandrils, with practice in finishing tempered articles on the universal grinding machine. First term.

(b) This course consists of the manufacture of parts of machinery, such as engine connecting rods. Second term.

4. The work of this course consists of practice in actual machine construction. Speed lathes and sensitive drills may be taken as sample exercises. Open to fourth year students in the Manual Training Course in Mechanic Arts who have completed Course 3 (b). Fifteen hours a week throughout the year, Daily, from 2:00 to 4:30.

IV. Foundry Work.

1. This course consists in thorough practice in moulding and general foundry work, including iron and brass casting. The patterns chosen will illustrate a wide range of work, the course being intended to give a general knowledge of foundry practice. Elective. Three hours a week during the first term.

2. This course will consist of special moulding, especially such work as will be required in connection with the work of machine design. Elective. Three hours a week during the second term.

V. *Sloyd.*

This course in Sloyd is intended primarily for younger students who are not sufficiently developed physically to carry the heavier work of the regular Mechanic Arts courses. It is also

well adapted for teachers who design to qualify themselves for teaching Sloyd in the district schools. The best Swedish and American methods are followed.

1. (a) Simple household and school-room articles, such as pointers, bread-boards, clothes-horses, foot-stools, scoops, etc., constitute the exercises of this course. Elective. Two hours a week during the first term.

(b) The work of this course consists of elementary turning, and scrolling, simple carving, and the completion of a small cabinet. Elective to students who have completed 1 (a). Two hours a week during the second term.

CHEMISTRY.

PROFESSOR WIDTSOE.
ASSOCIATE PROFESSOR YODER.
MR. ————————.

1. GENERAL CHEMISTRY. Required of sophomores in the Commercial Course and of freshmen in all other courses. Nine hours a week throughout the year. T., Th., S., at 9:00, and from 2:00 to 3:40.

(a) *Elementary Chemistry.* This course deals with the important facts and fundamental theories of chemistry, and with the application of chemistry in the arts and manufactures. The laws of chemical combination, the writing of reactions, and the solving of stoichiometrical problems are given special, careful consideration. Students taking this course must also take Courses 1 (b) and 1 (c).

(b) *Elementary Practical Chemistry.* This course supplements Chemistry 1 (a) and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each

other; their reactions are verified, and the facts and theories of the lecture room are tested by experiments.

(c) *Qualitative Analysis.* This course runs parallel with and supplements the descriptive study of the metals and their compounds. Under the direction of the instructor the students apply with their own hands the reagents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on a number of unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view.

2. ORGANIC CHEMISTRY. This course consists of a brief survey of the more important reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives, together with a full discussion of the nature and influence of molecular structure. Opportunity is given the student to prepare a number of organic compounds which illustrate in their preparation the methods of work of the organic laboratory. Required of juniors in the Domestic Science Course. Prerequisite: Chemistry 1. Five hours a week throughout the year. T., Th., S., at 10:40, and S., from 2:00 to 3:40.

3. AGRICULTURAL CHEMISTRY. This course consists of lectures and assigned readings on the chemical problems of agriculture. The aim is to make the student familiar with our present knowledge of the composition of the plant; the sources of plant food; the composition of the animal; the principles of animal nutrition; and the chemical nature of soils, waters, dairy products, etc. In the laboratory are taught the methods of agricultural analysis. Required of juniors in the Agricultural Course. Prerequisite: Chemistry 1. Three hours a week throughout the year. T., Th., S., at 9:50.

4. CHEMISTRY OF FOOD AND COOKERY. In this course, foods and methods of cooking are studied experimentally, with especial reference to human nutrition. The common foods, both

animal and vegetable, are separated by physical and chemical means into their constituents, after which the effects of different methods of cooking upon the various constituents are investigated. Wine, beer, tea, coffee, milk, and other drinks are also examined, and separated into their constituent parts. Spices and condiments are studied with the especial purpose of learning simple methods for the detection of the common adulterants. Some attention is also given to the effect of different kinds of heating apparatus upon the chemical changes that take place during cooking. Required of seniors in the Domestic Science Course; elective to others. Prerequisite: Chemistry 1 and 2. Four hours a week throughout the year. T., Th., from 2:00 to 3:40.

5. QUANTITATIVE ANALYSIS. This is mainly a laboratory course, giving the student practice in the typical methods of proximate and ultimate quantitative chemical analysis. It aims also to give, in familiar talks, a due appreciation of the importance of accuracy in chemical work, and of the relation of quantitative analysis to theoretical chemistry. After the necessary introductory practice, samples of waters, soils, ores, agricultural products, and foods are analyzed and reported upon. The work of the Experiment Station chemical laboratory furnishes a good opportunity, for the study of methods of analysis. Elective to those who have completed Course 1.

6. ANALYSIS OF FOODS AND FEEDING STUFFS. In this course, various articles of food, or farm products used for food, are analyzed to determine quantitatively the different constituents, as proteids, carbohydrates, fats, crude fibre, etc. In this work the Methods of Analysis adopted by the Association of Official Agricultural Chemists are in the main followed. Besides this work, numerous exercises in the detection of adulterants are carried out, and, if desired, the sanitary analysis of water will be included. Elective. Prerequisites: Course 1, and preferably Courses 2 and 5. In connection with the work going on in the Experiment Station laboratory, there is excellent opportunity for students to pursue this course. The course is especially valuable to students of

Domestic Science or of Agriculture, by giving them a scientific basis for judging the dietetic value of any food, or of determining a proper ration for man or beast. A direct aim of this course, also, is to fit the students for positions as analysts in agricultural experiment station chemical laboratories, or food inspection laboratories. Credit is given according to the work done.

7. ADVANCED QUALITATIVE ANALYSIS. This is a laboratory course, supplementary to the brief course 1 (a) in Qualitative Analysis, and is recommended to those General Science students who specialize in chemistry. Elective. Prerequisite: Chemistry 1. Two hours a week during the first or second term.

8. ADVANCED THEORETICAL CHEMISTRY. Lectures and recitations on some of the fundamental laws and theories of chemistry, including atomic theory, kinetic theory of gases, Avogadro's hypothesis, relation of gaseous, liquid, and solid states, solution pressure and vapor pressure, osmotic pressure, thermo-chemical relations, electrolytic dissociation, chemical equilibrium, law of mass action, isomerism and isomorphism, etc. Elective. Prerequisites: Chemistry 1 and 2. It is desirable to have completed Chemistry 5 also before taking this course. Three hours a week during the first term.

9. HISTORY OF CHEMISTRY. This course, or Chemistry 10, or a combination of these two courses, according to the desires of the students, will follow Chemistry 8 during the second term. Prerequisites as in Chemistry 8. Three hours a week.

10. INDUSTRIAL CHEMISTRY. Lectures and assigned reading on special chemical industries; e. g., the manufacture of sulphuric acid and soda, commercial fertilizers, lime and cements, glass and porcelain, pigments, sugar, starch, alcohol, soap, explosives, etc. It is not proposed in this course to deal exhaustively with many industries, but with a few industries for illustration, to enable the students to get an idea as to what is required of a chemist or a superintendent of such a factory, and to give him some drill in searching out the best and most profitable methods

of conducting any chemical industry. Elective. See Chemistry 8 and 9 for the time and the prerequisites of this course.

11. TOXICOLOGY. This is a laboratory course including a study of some of the more common poisons, their detection, and their separation from articles of food, contents of stomach, etc. Some attention is also given to the symptoms of poisoning, antidotes, and post-mortem examinations. The course is intended especially for students who expect to follow the profession of medicine, or who are preparing to work in laboratories as public analysts. Elective. Prerequisites: Chemistry 1 and 2, and preferably Chemistry 5. Three hours a week during the second term.

12. ASSAYING. The fire and wet methods of assaying continue and supplement the work of Course 5 in quantitative analysis. This course includes: a study of the principles of fluxing and their application to typical silicious, barytic, and pyritic ores; the assaying of rich, medium, and low grade silver, gold and lead ores by means of the "nitre," "nail," and "roasting" methods, and the comparison of results; the assaying of copper mattes and bullion by the combined dry and wet methods; and an explanation of mine, mill, and smelter assays. The wet methods of assaying are the ordinary methods of volumetric analysis so modified as to be applicable to the several purposes of the "assay requirements," and will include the rapid determination and estimation of silver, lead, copper, iron, silica, sulphur, zinc, lime, manganese, cobalt, nickel, etc. Large numbers of "smelter checked" samples are given as exercises to the students to assay. The practice in "fire" and "wet" assaying, as given by this course, aims to make of the student a practical and capable assayer. Elective. Prerequisites: Chemistry 1, and preferably Chemistry 5.

13. PHOTOGRAPHY. A course in practical photography will be offered, consisting principally of practical work by the students, introduced and supplemented by lectures and demonstrations by the instructor. The students will be given the use of a camera, and will expose plates or films under various conditions as to light

and subject in and out doors, develop plates and films, study effect of over and under-exposure and over and under-development, print pictures on the several classes of paper, as "blue-print" paper, "printing-out" paper, and "development" paper, tone with gold and with platinum, make transparencies and lantern slides, and enlarge or reduce pictures. Fees will be charged to cover cost of material consumed. One hour a week during the second term. Elective to students having had one term's work in Chemistry. Students desiring it will be given opportunity for more advanced experimentation along the several phases of photography.

14. RESEARCH WORK. The laboratories of the College and the Experiment Station are open to students with the necessary preparation, who desire to pursue special independent studies in the domain of chemistry. The researches carried on by the chemical department of the Experiment Station are of great aid to students who are engaged in the solution of scientific problems. Elective to those who have completed Courses 2 and 5.

15. METALLURGY. In this course, the time is devoted as far as practicable to the chemical side of metallurgy, the mechanical equipment being discussed only as far as is necessary for a full understanding of the chemistry of the metallurgical problems involved. Some of the subjects to be dealt with in this course are: the general principles of metallurgy, including first a thorough study of the general properties of the metals, followed by a consideration of the thermo and other treatments of metals and alloys; the properties, occurrence, and use of refractory materials and fluxing materials; the study of furnace slags; calculation of furnace charges; smelting and refining of coppers; and the metallurgy of gold, silver, lead, iron, zinc, aluminum, mercury, platinum, cobalt, and nickel. To students especially interested in the oil industry, some time will be devoted to a study of the chemical problems involved. The chemical problems of roasting, cyaniding, amalgamating, and other metallurgical processes form the basis for laboratory tests to be made by the students. Elective. four hours a week throughout the year.

NOTE.—In courses 5, 6, 7, 10, 11, and 14, a reading knowledge of German is highly s irable.

ZOOLOGY AND ENTOMOLOGY.

PROFESSOR BALL.
MR. ————————.

I. ZOOLOGY.

1. ELEMENTARY ANATOMY AND PHYSIOLOGY. In this course the structure and function of the different parts of the human body are carefully considered, special attention being given to the principles that underlie the care of the body. Dietary studies, ventilation, exercise, use of medicines, and other hygienic topics are treated in special lectures. In the laboratory the students first become familiar with the human skeleton and then work out the fundamental unity of the vertebrate plan through a comparison of a series of skeletons. During the second term they take up the microscopic study of tissues and examine fresh material from the butcher's shop. Martin's *Human Body*. Required of all second year students, except in the Manual Training courses, and of fourth year students in the Manual Training Course in Mechanic Arts. Four hours a week throughout the year. Three sections: Sec. 1, W., F., at 10:40, and T., from 9:50 to 11:30; sec. 2, W., F., at 10:40, and F., from 2:00 to 3:40; sec. 3, W., F., at 12:20, and W., from 2:00 to 3:40.

2. GENERAL ZOOLOGY. Required of all sophomores in the Agricultural and Domestic Science courses and of students in the General Science Course. Five hours a week throughout the year. T., Th., at 9:00, and T., from 2:00 to 4:30.

(a) *Invertebrate Zoology*. In each group of the invertebrates a typical example is taken up in detail and from this, as a basis, the related forms are considered and correctly associated. In the laboratory, representative examples of each group are studied and dissected. Special attention is given the Protozoa, *Hydra, Spongilla,* and other fresh water forms. First term. Parker and Haswell's *Manual of Zoology*.

(b) *Vertebrate Zoology.* In this course a detailed study is made of the different groups of the vertebrates, special attention being given to their origin and development. In the laboratory, typical examples of the lower groups are dissected and the remainder of the time is spent in a systematic study of the birds and mammals of Utah. Second term.

3. BIOLOGY. This course includes lectures on distribution of animals, environment, struggle for existence, natural selection, mimicry, protective coloration and resemblance, warning colors, adaptation, development, degeneration, parasitism, dimorphism, heredity, sex, instinct and reason, and kindred subjects connected with evolution. Jordan and Kellog's *Animal Life* will be used as a reference text. Elective to juniors in the Agricultural Course and to others who have completed Course 2. Two lectures a week throughout the year.

4. ADVANCED PHYSIOLOGY. The subjects discussed are: The phenomena of life; the physiology of the cell; chemical composition of the body; the physiology of nutrition; irritability and contractility; physiology of the circulation; physiology of the nervous system and sense organs. The laboratory work is an introduction to experimental physiology. Elective to those who have completed Course 2, and Chemistry 1. Three hours a week (lectures, conferences, and laboratory work) during the second term.

5. HISTOLOGY. A minute study of the elementary tissues, excepting the nervous system. Some time in the beginning is devoted to the preparation of stains, hardening, fixing and other fluids, each student being required to prepare the reagents for his own use. A typical mammal is used for material. Prepared slides of human tissues are furnished the student. The course includes methods of fixing, decalcifying, staining, imbedding, sectioning, mounting, and drawing. Elective to seniors in the Agricultural Course, and to others who have completed Course 2.

6. EMBRYOLOGY. In this course the general principles of development are discussed, beginning with the cell, maturation,

fertilization, karyokinesis, etc., and taking up the development of the gastrula in the different classes of the vertebrates. In the laboratory the student will trace the development of Ascaris, the frog, chick, and rabbit. Elective to seniors in the Agricultural Course, and to others who have completed Course 2. Three hours a week during the second term.

II. ENTOMOLOGY.

1. ECONOMIC ENTOMOLOGY. In this course the student acquires a general knowledge of the characteristics and habits of the different orders of insects. Injurious species are pointed out and the best remedies suggested. Insecticides and spraying receive attention. Each student makes a collection of insects and arranges it according to families, naming the common injurious species. Smith's *Economic Entomology*. Required of sophomores in the Agricultural Course and elective to others. Three hours a week during the first term. W., F., at 9:00 and one hour laboratory.

2. ADVANCED ENTOMOLOGY. This course is intended for Agricultural students who take a major in Horticulture, or General Science students with a major in Zoology. The work will consist of a careful study of typical examples of each group, collecting, mounting, and classifying in all orders, and the working out of life-histories of injurious species and the application of remedies. Elective to juniors in the Agricultural Course and to others who have completed Course 1. Three hours a week during the first term.

III. BACTERIOLOGY.

1. GENERAL BACTERIOLOGY. Instruction is given in the preparation of culture media, methods of obtaining pure cultures, staining, sterilization, etc. Yeasts and moulds are studied, and air, water and soil examined. Special attention is given to sani-

tation and the prevention of contagious diseases. Nitrifying organisms and the relation of bacteria to soil fertility are discussed. Required of juniors in the Domestic Science and Agricultural Courses, and elective to others. Seven hours a week during the second term. Th., at 12:20, and W., F., from 2:00 to 4:30.

BOTANY.

PROFESSOR HUTT.

1. STRUCTURAL AND SYSTEMATIC BOTANY. The aim of the work in structural and systematic botany is to help students to become familiar with the higher plants, the terms used in describing them, and their classification. Students are provided with microscopes and dissecting instruments for laboratory work, but must furnish their own collecting and mounting outfits. Fifty mounted and named plants are required. Gray and Coulter's *Text-Book of Western Botany*. Required of second year students in the Agricultural Course and freshmen in the Domestic Science Course. Three hours a week during the second term. T., Th., S., at 12:20.

2. PHYSIOLOGICAL BOTANY. Plant anatomy and the functions, growth, and nutrition of plant organs are studied. All laboratory equipment and materials are furnished. Bessey's *Essentials in Botany*. Required of sophomores in the Agricultural and Domestic Science courses; elective to others. Five hours a week during the first term. S., at 9:00, and Th., S., from 2:00 to 3:40.

GEOLOGY AND MINERALOGY.

ASSISTANT PROFESSOR PETERSON.

1. PHYSIOGRAPHY. This course is intended to develop observation, and give an appreciative knowledge of nature's work in and about the earth. The subjects studied will include:—the earth in space, the structure of the earth, land forms, erosions, lakes and lake basins, glaciation, the sea and its work, the atmosphere, etc. An effort will also be made to give each student some knowledge of the common rocks. Optional in second year of the College Preparatory Course. Two hours a week throughout the year. T., Th., at 2:00.

2. GENERAL GEOLOGY. The instruction given is intended to familiarize the student with the physiographic changes now in progress and the agencies which produce them, with the origin and structure of the various materials composing the earth's crust, and with the chronological succession of the great formations. A careful study of the development of the North American continent from the earliest time will comprise most of the second term's work. Several field trips will be made and enough field practice given to introduce the methods by which the geological phenomena of a given area may be interpreted. Required of juniors in the Agricultural Course and seniors in Domestic Science; elective to others. Three hours a week throughout the year. W., F., S., at 12:20.

3. STRUCTURAL GEOLOGY. The work in this course will begin with a classification of the common rocks, and a careful study of their characteristics, source and economic value. Work will then be taken up along the lines of structural and topographical geology, with stress laid upon the problems of stratification, cleavage, faulting, disintegration, etc., as it may affect the work of the engineer. Each principle is suplemented by field and laboratory work. Required of juniors in the Civil Engineering Course. Two hours a week throughout the year. W., F., at 11:30.

4. ECONOMIC GEOLOGY. The object of this course is to give the student some idea of the mineral resources of the United States. The work will include a careful study of the vein-forming minerals, origin of ore deposits, mining terms and methods, the source, production and economic value of iron, gold, platinum, silver, copper, lead, zinc, mercury, tin, aluminum, etc.; also the sources, with outlines of the processes of preparation, and economic value of coal, petroleum, natural gas, asphaltum, building stones, cements, soils, clays, mineral fertilizers, mineral water, fuller's earth, lithographic stone, precious stone, etc. Much of the information will be taken from the Reports of the United States Geological Survey. Elective to students who have completed Courses 2 and 5 and Chemistry 1. Two hours a week throughout the year.

5. MINERALOGY. This course is a systematic study of the common minerals as outlined in Dana's Manual. The student will be required to make a collection of the minerals near the College. Blow pipe analysis and determinative mineralogy constitute the laboratory work. Elective. Two hours a week during the first term.

PHYSICS.

ASSISTANT PROFESSOR CAMPBELL.

1. ELEMENTARY PHYSICS. The object of this course is to enable every student to obtain a practical acquaintance with laboratory methods of work, and with the elementary facts and laws which are the foundation of the science. The lectures are illustrated by experiments performed by the instructor, and many problems are worked in and out of class. The laboratory work consists of numerous experiments, chiefly quantitative, performed by each student. Carhart and Chute's *High School Physics;* Snyder and Palmer's *One Thousand Problems in Physics.* Re-

quired of sophomores in the Domestic Science and Commercial courses, and of freshmen in all other courses. Four hours a week throughout the year. Two sections: Section 1, W., F., from 9:00 to 10:40; sec. 2, W. F., from 11:30 to 1:10.

2. GENERAL PHYSICS. This is a more advanced course than Physics 1. Stress is laid on the subjects of mechanics, heat, and electricity. Carhart's *University Physics,* 2 vols. Required of sophomores in the Engineering courses; elective to others. Four hours a week throughout the year. T., Th., from 10:40 to 12:20.

3. DIRECT CURRENT AND MAGNETIC MEASUREMENTS. This course is primarily intended for students specializing in electrical science, but may be taken by others who have the necessary preparation. Most of the work will be in the laboratory, lectures being given from time to time as required. The laboratory work consists of accurate measurements of current strength, resistance, electromotive force, mutual induction, and the magnetic properties of iron. Two hours a week throughout the year.

4. ELECTROMAGNETISM AND ALTERNATING CURRENTS. The methods and aim of this course are similar to those of Course 3. All students in Mechanical Engineering are urged to take Courses 3 and 4 whenever a proper adjustment of their work can be made. Two hours a week throughout the year.

METEOROLOGY.

ASSISTANT PROFESSOR DRYDEN.

1. METEOROLOGY. This course includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the United States Weather Service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work. Required of sophomores in the Agricultural Course. Two hours a week during the second term. W., F., at 9:00.

MATHEMATICS AND ASTRONOMY.

PROFESSOR LANGTON.
ASSISTANT PROFESSOR PETERSON.
ASSISTANT PROFESSOR JENSEN.
MR. OSTIEN.
MR. BROWN.

NOTE.—The elective courses in Mathematics are not all given each year, but vary from year to year to suit the convenience of students who desire to specialize in mathematical science. Any elective course not applied for at the beginning of the year by at least three students properly prepared may not be given. If applied for by the requisite number of students, additional courses in quaternions, determinants, theory of equations or projective geometry will be given.

1. ARITHMETIC. This course consists of a thorough treatment of elementary arithmetic. Required of all students in the Sub-Preparatory Course, and of first year students in the Manual Training Courses in Mechanic Arts and Domestic Arts. Five hours a week throughout the year. Four sections, daily: section 1, at 2:50; sec. 2, at 9:50; sec. 3, at 10:40; sec. 4, at 2:50.

2. ARITHMETIC AND ALGEBRA. Required of second year students in the Manual Training Course in Mechanic Arts, third year students in the Manual Training Course in Domestic Arts, and first year students in all other courses. Five hours a week throughout the year. Five sections, daily: sec. 1, at 10:40; sec. 2, at 9:00; sec. 3, at 2:00; sec. 4, at 12:20; sec. 5, at 12:20.

(a) *Advanced Arithmetic.* Special attention is given to the nature, origin, and development of number. The class recitation hour is devoted to thorough consideration of the fundamental processes of arithmetic, including contracted methods of multiplication and division, common and decimal fractions, factors and multiples, mensuration, the metric system of weights and meas-

ures, square and cube root, proportion, percentage and interest, and practical problems. First term.

(b) *Algebra.* This course includes a thorough treatment of the fundamental operations, use of parentheses, factoring, highest common factor, lowest common multiple, fractions, and simple equations. Second term.

3. ALGEBRA, GEOMETRY. Required of third year students in the Commercial Course and the Manual Training Course in Mechanic Arts, and of second year students in all other courses, except the Manual Training Course in Domestic Arts. Five hours a week throughout the year. Two sections, daily: sec. 1, at 9:50; sec. 2, at 9:00.

(a) *Higher Algebra.* After a brief review of the subjects treated in Course 2 (b), the following subjects are considered: simple equations, inequalities, involution and evolution, theory of exponents, radicals, quadratic equations, ratio and proportion, progressions, and binomial theorem. *The Essentials of Algebra*—Wells. First term.

(b) *Plane Geometry.* This course includes the general properties of polygons; problems of construction, and determination of areas; regular polygons and circles, with problems in construction, and methods for determining the ratio of the circumference to the diameter; and maxima and minima. Special attention will be given to the development of the power of logical thinking, and of accuracy and conciseness of expression. *The Essentials of Geometry*—Wells. Second term.

4. GEOMETRY, ALGEBRA, TRIGONOMETRY. Required of sophomores in the Agricultural and Domestic Science Courses, of seniors in the Commercial Course, and of freshmen in other courses. Five hours a week throughout the year. Daily at 9:50.

(a) *Solid Geometry.* Wells' *Geometry.* First third of year.

(b) *Advanced Algebra.* This course is a continuation of Course 3 (a), and includes a thorough drill in the most important principles of higher algebra required in the engineering and other courses. Second third of year.

(c) *Trigonometry.* The deduction of general trigonometric formulæ, the solution of plane and spherical triangles, and practice in the use of logarithmic tables. Lyman and Goddard's *Trigonometry.* Last third of year.

5. ANALYTIC GEOMETRY, CALCULUS. Required of sophomores in the Engineering courses; elective to others who have completed Course 4. Five hours a week throughout the year. Daily at 9:00.

(a) *Analytic Geometry.* The analytic geometry of the straight line, the circle, and the conic sections, including a discussion of the general equations of the second degree, and some special examples in transcendental and higher plane curves.

(b) *Differential Calculus.* The development of the fundamental principles and formulæ of the differential calculus; applications to various problems in plane geometry and analysis, such as indeterminate forms, maxima and minima, curvature, expansions of functions in series, evolutes and involutes, and curve tracing.

(c) *Integral Calculus.* Integration of various forms; development of the formulæ of the integral calculus; application in rectification of curves, quadrature of plane and curved surfaces, cubature of volumes, etc.

6. DIFFERENTIAL EQUATIONS. This course is so arranged to meet the special requirements of engineering students, and includes a treatment of the theory and methods of the solution of total differential equations, with a short introduction to partial differential equation. Required of juniors in the Engineering courses. Three hours a week during the first term. T., Th., S., at 12:20.

7. MODERN GEOMETRY. This course treats the most important theorems and examples connected with harmonics, anharmonics, involution, projection (including homology) and reciprocation, including the following: Harmonic ranges and pencils; conics and focal projections; anharmonic ratios; homographic ranges; anharmonic properties of points on a conic, of tangents of a conic; poles and polars; reciprocation; properties of triangles;

Pascal's and Brinchon's theorems, homographic ranges on a conic; ranges and pencils in involution; involution of conjugate points and lines; involution range on the conic of a quadrangle and of a quadrilateral; constructions of the first and second degree; the principle of continuity; circular points and lines; real and imaginary projection, generalization by projection; homology. Cremona's *Projective Geometry;* Russell's *Treatise on Pure Geometry;* Lachlan's *Modern Pure Geometry.* Elective to those who have completed Course 5. Five hours a week throughout the year.

8. PLANE AND SOLID ANALYTICAL GEOMETRY, ADVANCED COURSE. This course includes the equations and properties of the point, right line, and plane, of the sphere, cylinder and cone, and of the paraboloids, ellipsoids, and hyperboloids; the modern algebraical methods of the conic sections; a short discussion of the general theory of higher plane curves and surfaces; applications of the differential and integral calculus to problems involving functions of two or more variables, such as development in series and transformation of functions, curvatures, areas of surfaces, volumes of solids, etc. The work of this course will consist in the discussion of portions of Salmon's *Conic Sections, Higher Plane Curves,* and *Analytic Geometry of Three Dimensions.* Elective to students who have completed Course 5. Five hours a week throughout the year.

9. DIFFERENTIAL AND INTEGRAL CALCULUS, ADVANCED COURSE. This course embraces the elements of the theory of functions of imaginary variables; the various methods of integration, systematically treated; the elements of the theory of the elliptic functions; the mechanical and geometrical applications of the calculus treated more fully than in Course 5; and some of the more important cases of differential equations. Todhunter's *Differential Calculus* and Williamson's *Integral Calculus.* Elective to students who have completed Course 9. Five hours a week throughout the year.

10. HISTORY AND PHILOSOPHY OF MATHEMATICS. This course deals with the origin, development, and logical relation of

the various subjects of mathematical science, including a series of synoptic lectures, which may be roughly outlined as follows: mathematics among the ancients; Descartes and the discovery of analytic geometry; Newton, Leibnitz, and the calculus; Hamilton and the invention of quaternions; modern geometry; mathematics and mathematicians of the United States. Ball's *History of Mathematics.* Comte's and Bledsoe's *Philosophy of Mathematics,* the *Encyclopaedia Britannica,* and other works of reference. Elective to students who have completed Course 9. One hour a week throughout the year.

11. General Astronomy. This course deals with the general facts and principles underlying the science of astronomy, with solutions of many problems, particularly those relating to the determination of latitude, longitude, and time. Instruction is given by means of recitations and lectures. Young's *General Astronomy.* Elective to students who have completed Course 4. Two hours a week throughout the year.

12. Practical Astronomy. A continuation and completion of Course II. Theory and use of instruments—sextant, transit instrument, zenith telescope, and equatorial; various methods of determining longitude and latitude; graphical methods of predicting eclipses, etc. Doolittle's *Practical Astronomy;* Clarke's *Geodesy.* Elective to those who have completed Courses 5 and 11. Two hours a week throughout the year.

ENGLISH LANGUAGE AND LITERATURE.

PROFESSOR UPHAM.
MR. CAINE.
MISS MOENCH.
MISS WYANT.
MISS AMANDA HOLMGREN.
MRS. OSTIEN.

1. GRAMMAR AND COMPOSITION I. This work includes: orthography; the parts of speech; the construction, analysis, and punctuation of easy sentences; the correction of common errors in language; and the writing of brief compositions. The written work is in part suggested by the text book, and in part correlated with the lessons in reading and in geography. Hyde's *Lessons in English, Second Book* for sections 1 and 2; Hyde's *Two Book Course,* Book II, for sections 3 and 4. Required of all Sub-Preparatory students. Five hours a week throughout the year. Four sections, daily: sec. 1, at 12:20; sec. 2, at 9:00; sec. 3, at 2:00; sec. 4, at 9:00.

2. READING AND SPELLING. In this work there are several ends in view. The pupil is carefully trained to understand and appreciate what he reads, and at the same time particular attention is given to developing a vocabulary and forming a habit of correct expression. Written summaries and reproductions are required and due care is given to spelling. The reading is as follows: sections 1 and 2;—Dickens—*Christmas Carol,* Lowell—*Vision of Sir Launfal,* Coleridge—*Ancient Mariner,* Irving—*Selections,* Stevenson—*Treasure Island,* Cooper—*Last of the Mohicans,* Sections 3 and 4;—Eliot—*Silas Marner,* Pope—*Homer's Iliad,* Books I and VI, Hawthorne—*Great Stone Face,* Shakspere—*Merchant of Venice,* Hughes—*Tom Brown's School Days,* Lytton—*Last Days of Pompeii.* Required of all Sub-Preparatory students. Five hours a week throughout the year. Four

sections, daily: sec. 1, at 9:00; sec. 2, at 2:00; sec. 3, at 9:50; sec. 4, at 2:00.

3. GRAMMAR AND COMPOSITION II. The study of grammar is completed in this course. There is a thorough review of the parts of speech, and attention is given to the principles of syntax, and to the construction and analysis of sentences. Later in the year an elementary text-book in rhetoric is introduced, and the student is drilled in the correct use of words and sentences. Material for composition work is drawn from the text-book, and from the lessons in English Classics and U. S. History. Kimball —*The English Sentence;* Gardiner, Kittredge, and Arnold—*The Mother Tongue, Book III.* Required of all first year students. Five recitations a week throughout the year. Five sections, daily: sec. 1, at 9:50; sec. 2, at 10:40; sec. 3, at 12:20; sec. 4, at 2:00; sec. 5, at 10:40.

4. ENGLISH CLASSICS. Addison—*Sir Roger de Coverly,* Macaulay—*Essays on Addison,* Milton—*Minor Poems,* Shakspere—*Julius Caesar,* Tennyson—*The Princess,* Scott—*Ivanhoe,* Goldsmith—*The Vicar of Wakefield.* This course aims at a thorough understanding of the material, and encourages the student in giving his own expression of the thoughts there found. The elementary qualities of style are explained and illustrated. Occasional written exercises are required, and memory passages are assigned. Required of all first year students. Two hours a week throughout the year. Five sections; sec. 1, W., F., at 2:50; sec. 2, T., F., at 12:20; sec. 3, W., F., at 9:50; sec. 4, Th., S., at 10:40; sec. 5, T., Th., at 2:50.

5. RHETORIC AND COMPOSITION. It is intended to make this an extremely practical course in the writing of English. Lectures and recitations, based on an advanced text-book, give continued attention to the principles of rhetoric. The reading of prescribed pieces of prose and poetry, in and out of class, affords contact with the best models. The composition work proper consists of at least three short exercises a week, more or less related to the other work of the course. A longer theme is required each

month. These exercises are criticised and returned, and private conferences are given the writers as often as possible. Adams Sherman Hill—*The Principles of Rhetoric;* Milton—*Paradise Lost, Book I;* Macaulay—*Essay on Milton*; Shakspere—*Macbeth;* Burke—*Conciliation with America.* Required of all second year students. Five hours a week throughout the year. Two sections, daily: sec. 1, at 9:00; sec. 2, at 9:50.

6. THE HISTORY OF ENGLISH LITERATURE. A general survey of the progress of English literature from the Anglo-Saxon period to the present time. Important movements and significant authors are studied at considerable length, with due attention to social and political relations, and to contemporary foreign literature. The work is carried on by lectures and recitations, a large amount of work being prescribed for reading and discussion. Pancoast's *Introduction to English Literature* is used as a text-book. Required of freshmen. Three hours a week throughout the year. T., Th., S., at 10:40.

7a. ENGLISH PROSE. An exposition of the principles of literary criticism. A careful study is made of selected examples of description, narration, exposition, and argumentation. Particular attention is paid to the principles of argumentaton. Frequent written exercises and debates may be required, and each student is assigned one author for special study. The handbooks of *English Readings,* published by Holt and Co., will form the basis of the work. Baker's *Principles of Argumentation* is the text-book in that work. Three hours a week during the first term. T., Th., S., at 11:30.

7b. THE ENGLISH VOCABULARY. This course will be chiefly concerned with the following points: the history of the English language; the development of the literary language from a dialect; the sources of our vocabulary; the processes of change in the meaning of words. *Words and Their Ways in English Speech*—Greenough and Kittredge. Three hours a week during the second term. T., Th., S., at 11:30. English 7 is required of juniors in the Agricultural, Domestic Science, and Commercial courses, and of General Science students.

8. THE ELIZABETHAN MOVEMENT. This course offers an opportunity for more advanced work in one particular period of English literature. Beginning with the rise of the Renaissance spirit in England, it will give particular attenton to the drama of Shakspere and his contemporaries, and then follow the decline of the movement to the Closing of the Theatres, 1642. If possible, the Restoration period will be studied in its relation to this movement. Lectures, prescribed reading, and theses. Elective. Two hours a week throughout the year. Omitted in 1903-4.

9. THE ROMANTIC MOVEMENT. Similar to English 8 in method and requirements. English Romanticism is considered from its reactionary beginnings at the middle of the eighteenth century to its diffusion among the writers of the Victorian period. Foreign parallels and influences are carefully noted. Elective. Two hours a week throughout the year.

10. CHAUCER AND SHAKSPERE. This is a course in careful detail study. The first term is devoted to Chaucer's Canterbury Tales, including the Prologue. Matters of grammar, pronunciation, sources, social and political allusions, and literary art, all receive attention. Prominence is given to Chaucer's place in the development of the language. The second term is occupied with the interpretation of four plays of Shakspere in somewhat the same manner. Omitted in 1903-4.

11. ANGLO-SAXON AND MIDDLE ENGLISH. This course is designed to furnish a basis for advanced study of the English language, and to acquaint the student with early literature in English. The text-book in Anglo-Saxon will be Bright's *Anglo-Saxon Reader;* that in Middle English will be Emerson's *Middle English Reader.* Elective. Three hours a week throughout the year.

12a. AMERICAN LITERATURE. This course deals with the literary works produced in America from the foundation of the colonies to the present time, particular emphasis being given to the past century. The contemporary development in English is constantly kept in view. Lectures, prescribed reading, and reports. Elective. Three hours a week during the first term.

12b. VICTORIAN POETS. A course of detailed study for those who have a general knowledge of these poets and wish to consider

them at their best. Particular attention is given to Browning and Tennyson. Elective. Three hours a week during the second term.

13. ELOCUTION I. This course includes class-room work in voice-culture, gesture, and the principles of expression. The memorizing, interpretation, and delivery of a number of selections are required. Clark and Chamberlain's *Principles of Vocal Expression and Literary Interpretation* is used as a text book. The reading comprises: Arnold's *Sohrab and Rustum;* Rostand's *Cyrano de Bergerac;* Sheridan's *School for Scandal.* Elective to students who have completed English 4.

14. ELOCUTION II. The advanced course in Elocution is intended for those who have completed the elementary work and desire to continue under individual instruction. The student may choose between two lines of work. One of these includes a further study of the general laws of expression and the principles of art; the cutting of short stories, novels, and plays for public reading; the interpretation and presentation of more advanced readings. Hauptman's *Sunken Bell,* and Shakespere's *King Lear* and *As You Like It* will be read. The other line of study is intended to prepare for public speaking. Representative English and American orations will be studied for correct delivery, and effective passages will be analyzed. Original work will be required in the toast, short speech, formal address, and debate. Special study will be made of Shakespere's *Coriolanus* and *Julius Caesar.*

MODERN LANGUAGES AND LATIN.

PROFESSOR WILSON.

MR. ————————.

The elementary courses in this department aim to give the student an accurate knowledge of the grammar of the language studied; the ability to translate with readiness from English and into English; and the ability to understand the spoken language

and to converse upon simple topics, with proper pronunciation. To attain this end the language studied is as far as possible made the language of the class room; specimens of lyric poetry are committed to memory; much practice is afforded in prose composition both oral and written, and grammar is studied throughout the course.

The more advanced courses, besides affording further opportunities for linguistic discipline and literary culture, aim to prepare the student for independent and progressive work in some more particular department of the literature of the language studied.

GERMAN.

1. ELEMENTARY COURSE. Exercises in composition. Familiar poems memorized. Translation of easy texts. Oral and written reproduction of the substance of selected passages from readings. Joynes-Meissner's *German Grammar,* Part I; Mueller and Wenkebach's *"Glueck Auf";* Zschokke's *Der Zerbrochene Krug;* Arnold's *Fritz auf Ferien.* Course 1 is intended for those beginning the study of the language. Optional with French and Spanish in the Commercial Course, and with French in all other College courses. Five recitations a week throughout the year. Two sections: sec. 1, at 9:50; sec. 2, at 10:40.

2a. SECOND YEAR GERMAN. *Joynes-Meissner's* Grammar, completed and reviewed; Harris' *German Prose Composition.* Rapid reading of narrative prose:—Storm's *Immensee;* Hauff's *Das Kalte Herz;* Ebner Eschenbach's *Die Freiherren von Gemperlein;* Benedix's *Der Prozess;* Schiller's *Wilhelm Tell,* First term.

2b. SCIENTIFIC GERMAN. Rapid translation of German scientific monographs; *German Science Reader.* Second term. Course 2 is open to those who have completed Course 1, or an equivalent. Optional as Course 1. Five recitations a week throughout the year.

3. THIRD YEAR GERMAN. Study of German literature; the classic period. Lessing's *Minna von Barnhelm;* Goethe's *Hermann and Dorothea;* and *Götz von Berlichingen;* Freytag's *Ver-*

lorne Handschrift; history of German literature; advanced composition. Open to those who have completed Courses 1 and 2 or an equivalent. Three hours a week throughout the year.

4. SCIENTIFIC AND HISTORICAL GERMAN. The work in Scientific German consists of the translation of German scientific monographs by Cohn, Weismann, Helmholtz and other German scientists; Hodge's *Scientific German.* The work in Historical German consists of the rapid translation of modern historical and economic German as found in leading German magazines. Open to those who have completed Courses 1 and 2 or an equivalent. Two hours a week throughout the year.

FRENCH

1. ELEMENTARY FRENCH. Fraser and Squair's *French Grammar, Part I;* selections from Reader with composition based on same; Colin's *Contes et Saynètes;* Hâlévy's *L' Abbé Constantin;* Merimee's *Colomba;* Dumas' *La Tulipe Noir.* Course 1 is intended for beginners in French. Stress is laid upon the acquisition of a correct pronunciation. Exercises in grammar, composition, and conversation are made subservient to the attainment of a full and accurate reading knowledge of the language. Optional with German or Spanish in the Commercial Course and with German in all other courses. Five recitations a week throughout the year.

2. SECOND YEAR FRENCH. Fraser and Squair's *Grammar* completed; Daudet's *Tartarin de Tarascon;* Hugo's *Berg Jargal;* Augier's *Le Gendre de M. Poirier;* Bowen's *French Lyrics;* scientific French reading. Advanced composition; writing from dictation; exercises in conversation. Open to those who have completed Course 1 or an equivalent. Three hours a week throughout the year. Optional as Course 1.

3. THIRD YEAR FRENCH. French Literature; Moliere's *L'Avare;* Corneille's *Le Cid*; Racine's *Andromaque;* La Fontaine's *Fables;* Hugo's *Hernani;* Rostand's *Cyrano de Bergerac;* History of French Literature. Translation of selected English Prose; exercises in conversation. Open to those who have com-

pleted Courses 1 and 2 or an equivalent. Three hours a week throughout the year.

4. SCIENTIFIC AND HISTORICAL FRENCH. Translation of monographs on scientific subjects by recent French writers as contained in standard French scientific magazines; sight reading and rapid translation of topics from French writers on history and economics. Open to those who have completed Courses 1 and 2 or an equivalent. Two hours a week throughout the year.

SPANISH.

1. ELEMENTARY COURSE. Garner's *Spanish Grammar;* exercises in conversation and composition; Matzke's *First Spanish Readings;* Valdes' *José;* Tamayo y Baus' *Un Drama Nuevo.* Optional with French or German in the Commercial Course. Five recitations a week throughout the year.

2. SECOND YEAR SPANISH. Garner's *Spanish Grammar* completed; advanced Prose Composition; exercises in conversation; Ramsey's *Text Book in Modern Spanish;* Alarcon's *El Capitan Veneno;* Lope's *Estrella de Sevilla;* Galdos' *Doña Perfecta;* Zorilla's *Don Juan Tenorio.* Open to those who have completed Couse 1 or an equivalent. Optional as Course 1. Three hours a week throughout the year.

LATIN.

The following courses in Latin are offered to students in three year courses, and to students in College courses who have not presented parallel courses as entrance requirement.

1. FIRST YEAR LATIN. Collar and Daniell's *First Year Latin; Viri Romae.* Drill on essentials of Latin grammar; comparison with English grammar; acquirement of vocabulary; English words derived from Latin; selections for reading. Elective. Five hours a week throughout the year.

2. SECOND YEAR LATIN. Greenough, D'Ooge and Daniell's *Second Year Latin;* D'Ooges *Latin Composition based on Caesar;* Bennett's *Latin Grammar;* selected readings from Part 1, *Second*

Year Latin; an equivalent of four books from selections from Caesar; oral and written composition. Attention is given to etymology of English derivatives and cognates; accuracy and facility in translation into idiomatic English; sight translation. Open to students who have completed Course 1.

3. THIRD YEAR LATIN. Cicero's Orations:—four against Catiline; Oration in behalf of the Poet Archias; Pompey's Military Command. Advanced composition based on connected passages; study of the life and time of Cicero; sight translation. Open to those who have completed Courses 1 and 2 or an equivalent. Three hours a week throughout the year.

4. FOURTH YEAR LATIN. Virgil's Aeneid; study of meter, scansion, versification; vocabulary and grammar of the poet; Virgil's life and friends; comparison of the great epic poems of Homer, Virgil, Dante and Milton; comparison of translations; passages from the Aeneid translated into English in the meter of the original; sight reading; advanced prose composition. Open to those who have completed Courses 1, 2, and 3, or an equivalent. Three hours a week throughout the year.

HISTORY.

PROFESSOR ENGLE.
MRS. OSTIEN.

1. GREEK AND ROMAN HISTORY. This course is intended chiefly as an introduction to Greek and Roman history; Thorough text-book work is required. Such reading is done as is necessary to supplement the text. It is the purpose of this work gradually to give the student broader views of history, and thus lay the foundations for advanced work in United States history. In this course the lines of historical study usually followed will be taken up. Greek history occupies the first term, Roman history the second. West's *Ancient History* is the text. Required of first year students in Domestic Science, Commerce, and College

Preparatory courses. Five sections, three hours a week throughout the year. Sec. 1, W., Th., S., at 12:20; sec. 2, Th., F., S., at 2:00; sec. 3, T., Th., S., at 9:50; sec. 4, T., W., F., at 10:40; sec. 5, W., F., S., at 2:50.

2. UNITED STATES HISTORY I. This course inludes a study of social life, economic conditions, political development, literary beginnings, and historical literature. Lectures are occasionally given. Library work is encouraged. The text is *Epochs of American History*. Required of second year students in the Domestic Science and College Preparatory courses, and third year students in Manual Training in Domestic Arts. Two sections, three hours a week throughout the year. Sec. 1, T., Th., S., at 10:40; sec. 2, T., Th., S., at 2:00.

3. UNITED STATES HISTORY II. This course includes the history and interpretation of our national constitution, the relation of our state constitutions to the national government, governmental forms, supreme court decisions as influencing the course of our government; and a careful survey of all those features in American history necessary to intelligent citizenship. Johnson's *Constitutional History* and Fiske's *Civil Government*. Required of third year students in Agriculture, and fourth year students in Mechanic Arts. Three hours a week throughout the freshman year. T., Th., S., at 9:50.

4. INDUSTRIAL HISTORY OF THE UNITED STATES. The history of our country is here reviewed as an outgrowth of inventions, manufactures, commerce and navigation. The effect of inventions upon industrial activity and civilization in general, is traced with care. The Civil War is explained as an outgrowth of conflicting industrial systems. Elective to those who have completed History 1, 2, or 3. Three hours a week during one term.

5. ENGLISH HISTORY. In this course racial traits, literary development, constitutional growth, social life at different stages, English conversation, origins, contributions, colonial systems, art, architecture, and pauperism are some of the topics discussed. A leading aim in the course is to teach the philosophy of history

concretely. Research work is an important feature. Montgomery's *History of England*. Elective to those who have completed Courses 1 and 2. Three hours a week throughout the year.

6. MODERN EUROPEAN HISTORY. This course includes a discussion of European history from Charlemagne to the present time. Among the topics discussed are: consolidated monarchies, the balance of power, the French Revolution, formation of the German Empire, development of the Swiss Confederation, the Napoleonic wars, etc. Whitcomb's *Modern European History* is the text. Required of second year students in Commerce. Three hours a week throughout the year. T., Th., S., at 12:20.

7. PHILOSOPHY OF HISTORY. This course deals with causal relations, fundamental principles, comparative discussions of civilizations, historical values, relation of geography and history, historical sources, and appropriate tests of the truthfulness of data. Droysen's *Principles of History*. Elective to those who have completed Courses 1, 2, and 3. Three hours a week during one term.

DRAWING.

MR. STUTTERD.
MR. PULLEY.

1, 2, 3. FREE-HAND DRAWING. These courses are purely individual, and are varied to meet the needs of the line of work the student is pursuing. Required of first year students in the Agricultural and College Preparatory courses, of second year students in the Manual Training Course in Mechanic Arts, and, during the first term, of third year students in the Domestic Science course. Five hours a week throughout the year. Each course subdivides into the following parts:

(a) *Elementary Drawing*. This work includes drawing with charcoal, pencil, or pen and ink, in outline, mass, or light and

shade, from simple objects, casts, flowers, plants, birds, animals, etc. Study of the simple principles of light and shade, proportion, perspective—both linear and aerial—textures, color, etc.

(b) *Advanced Drawing.* This includes the same principles applied to higher forms. Drawing from casts of the full length figure; sketching from nature—human, animal and landscape. The Agricultural students draw from the different breeds of live-stock. Painting in water color or pastel from objects, flowers, plants, birds, animals, etc.

(c) *Design. The Applied Arts.* Principles of art in every day things. Study of the composition of line, tone, and color applied to products of the different crafts, as tiles, pottery ware, textiles, ceramics, wall-papers, mosaics, bookcovers, etc. Planning and development of original motives and patterns by the students. Creating decorative forms from geometrical figures; selecting, conventionalizing and arranging flowers, birds, animals and the human figure. Study of historic design. The Domestic Science students do designing for lace work, embroideries, rugs, tablecloths, etc.; the principles of art applied to household decoration. Mechanic Arts students make designs for carved wood, wrought iron, stained glass, etc.

(d) *Composition. The Fine Arts.* Study of the composition of line, tone, and color applied to architecture, sculpture and painting. Original compositions by the students, using as motives objects, flowers, plants, birds, animals, human figures and landscape forms. Study of the works of the masters, with considerations on the conception and execution.

4. Special Work in Art. Open to those who have taken a general course and wish to follow some particular line. This includes drawing in all mediums; modeling; painting in oil, water color and pastel; designing and composition, in their different branches. Three hours a week throughout the year.

5. Mechanical Drawing. This is the introductory course in mechanical drawing for students taking the Manual Training Course in Mechanic Arts. It consists of simple projections—

orthographic, isometric and oblique, and linear perspective. These are illustrated as far as possible by making working drawings of the simpler exercises of the shop work. Required of third year students in the Manual Training Course in Mechanic Arts who have completed Course 2. Six hours a week throughout the year. W., F., S., from 11:30 to 1:10.

6. DRAWING AND DESIGN. In this course the work is adapted to the line of shop work which the student is pursuing. It is intended to give practice in design with consideration for proper proportion for strength as well as for aesthetic qualities. In this course the student is expected to make his own designs for his work in the shops. Required of fourth year students in the Manual Training Course in Mechanic Arts who have completed Drawing 5. Six hours a week throughout the year. W., F., S., from 11:30 to 1:10.

GEOGRAPHY.

PROFESSOR ROBINSON.

To get an intelligent conception of the natural resources of countries, the physical features receive special attention. Astronomical and geological features are presented as far as the course will permit. The principal changes that have wrought the present conditions are studied, and the atmosphere and water receive attention. Map drawing and frequent reviews are features of the course. Commerce and its effect upon nations are considered, as are also the classifications of mankind, animals, and plants. Required of all students in the Sub-Preparatory Course, and of first year students in the Manual Training Course in Mechanic Arts. Four sections; three hours a week throughout the year. Sec. 1, T., Th., S., at 9:50; sec. 2, T., Th., S., at 12:20; sec. 3, T., Th., S., at 9:00; sec. 4, T., Th., S., at 10:40.

PENMANSHIP.

MR. BANKHEAD.

The course in penmanship consists of blackboard and individual instruction. Required of all students in the Sub-Preparatory Course, and of first year students in the Manual Training Course in Mechanic Arts. Three sections, daily: sec. 1, at 10:40; sec. 2, at 12:20; sec. 3, at 3:40.

MUSIC.

MR. MITTON.

A chorus of mixed voices, and also a male chorus, is organized, composed of all students who wish to join; and instruction in choral work of a high order is given. Every effort is made to cultivate a taste for music and to assist the students in acquiring a knowledge of the same. An orchestra and a military band are organized at the beginning of the year, and arrangements made for regular instruction and practice. Persons desiring to join the orchestra or the band will find it advantageous, if they own instruments, to bring these with them for home practice.

MILITARY SCIENCE AND TACTICS.

Commandant—Captain Henry D. Styer, U. S.A.

COMMISSIONED OFFICERS FOR 1902-3.

Adjutant—William Horace Kerr.
Quartermaster—Irving Sampson.

Company A.	Company B.
Captain—Francis David Farrell.	Captain—Samuel Grover Rich.
1st Lieut.—Abraham Smith.	1st Lieut.—Gideon Wilson Sidwell.
2nd Lieut.—Alvin Edwin Jordan.	2nd Lieut.—Henry Gleed, Jr.

All students of the College, except those physically disabled, are required to take two years' work in the military department. The cadets are organized in two companies, according to their experience and proficiency. The officers for each year are chosen from the ranks by competitive examinations. Regular drill occurs five hours a week, except during the winter months, when work in Calisthenics is substituted for a portion of the time. Daily, at 11:30.

Twice a week throughout the year, the officers of the department meet for discussion of matters relating to military work, and for recitations in the United States Infantry drill regulations.

The government furnishes Springfield cadet rifles and equipment for infantry drill, and two three-inch rifled cannons for artillery instruction. A uniform, consisting of cap, dark blue blouse, light blue trousers, and white regulation gloves, must be worn by the cadets. Arrangements have been made for obtaining this uniform through the secretary of the College at actual cost. The cost of the uniform is about $13. All students of the College taking drill are required to obtain the prescribed uniform, which must be worn upon all occasions of drill, or when students are

receiving any other military instruction. The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and students are required to make arrangements so as to be able to order the uniform when they enter.

(a) *Infantry Drill.* This includes all the movements described in the drill regulations of the U. S. army, from the gymnastic instruction in the setting-up exercise, the school of the soldier, and the bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition; instruction in signaling with flag, and in military telegraphy.

(b) *Artillery Drill.* This embraces drill in the manual of the piece, and target practice when practicable.

(c) *Calisthenics.* During the winter months, systematic progress cannot be made in the regular drill work. The purpose of the department, during this time, is to maintain the ground already covered. With this object in view, the regular drill is given only twice a week. However, during the remainder of the time a thorough course is given in military calisthenics. The object of this course is to give the cadets a healthy body with a proper military carriage. Required of all cadets.

(d) *Theoretical Instruction.* During the second term of the second year, a systematic course is given in military science, by means of lectures. The following texts are used in this course: Califf's *Notes on Military Science;* Hamilton's *Elementary Principles Connected with the Art of War;* Wagner's *Tactics.*

ATHLETICS AND GYMNASTICS FOR WOMEN.

MISS MOENCH.

All women students of the College are required to have two years of physical training. Each student receives the personal attention of the instructor. Anthropometric charts are made out, and exercises to meet the individual needs of the students are prescribed. In addition to the special work, regular class work is given, and once a month the students meet for instruction on topics pertaining to health, physical education and social decorum. Daily, at 11:30.

It is necessary for each student to have a suit consisting of divided skirt, blouse, and slippers with rubber soles. The entire costume is ordered by the College and furnished to the student for actual wholesale cost. The student is thus saved the labor of making the suit, and is assured of a costume well made, neatly fitting, comfortable, and serviceable. Students are expected to come prepared to order suits immediately upon entering the College. The cost of the suit, including slippers, is about $4.

1. JUNIOR GYMNASTICS. Students who have had no gymnasium training are registered in this course. The aim of the work is to overcome physical defects, to establish a correct carriage of the body, to produce symmetrical development, to strengthen the muscles, and to relieve the tension of brain work; as well as to acquire a thorough knowledge of gymnastic nomenclature. The exercises in this course are adapted from the German and from the Swedish systems of gymnastics, with simple exercises with light apparatus, military marching, and Gilbert steps.

2. SENIOR GYMNASTICS. Students who have had first year work in the College gymnasium, or who have had its equivalent elsewhere, are admitted to the senior class. The aim of this course is to strengthen the results already accomplished and to

produce elasticity, poise, grace, and ease of manner. More difficult exercises are given in the light apparatus; together with drill with heavy apparatus; advanced movements in the Swedish and the German systems; Delsarte, Grecian and modern dances; minuet; etc.

3. ATHLETICS. All women who are not engaged in gymnasium work are urged to elect one course in Athletics; e. g., Basket Ball, Tennis, Bowling, Fencing, etc.

Winter Courses.

AGRICULTURE.

1. AGRONOMY. This course will embrace a discussion of the following topics: the atmosphere as a source of plant food; the soil—its formation and classification, the compounds it contains as sources of plant food; the plant—how it grows, feeds, and matures, and the animal food product it yields; how to maintain the fertility of Utah soils; rotation of crops; irrigation in its relation to the production of crops. Five hours a week.

2. JUDGING AND MANAGEMENT OF LIVE STOCK. A discussion of the various types of live stock; their adaptability for variout purposes on the farm, and the principles involved in their improvement. As much time as possible is given to the practical handling and judging of the living animals on the College farm. Craig's *Judging Live Stock*. Three hours a week.

3. FEEDING LIVE STOCK. The principles underlying the successful feeding of live stock on the farm and the practical applications to Utah conditions. Jordan's *Feeding Animals*. Three hours a week.

4. DAIRYING. A discussion of the composition and properties of milk; milk testing; milk fermentation; etc. The manufacture of butter and cheese is fully explained. Wing's *Milk and Its Products*. Two hours a week.

5. DAIRY PRACTICE. Those who wish to specialize in dairying have opportunity for ample practice in the College dairy, which is well equipped with modern aparatus.

6. POULTRY. The instruction covers breeds of poultry, foods and feeding, buildings, and management. Where desired,

arrangements can be made for practice in operating incubators. Two hours a week.

7. HORTICULTURE. The subject of horticulture is treated in a course of lectures covering the following subjects: selection of varieties; soil adaptation; preparation for planting; care and cultivation; commercial orcharding; picking, packing, and marketing fruit; orchard disinfection, including a careful study of prevalent orchard diseases and injurious insects, and the means of combating them; pruning of trees and treatment of tree wounds, to be demonstrated by practical work in the College orchard; top-grafting of mature trees; orchard irrigation and conservation of moisture; drainage of orchard lands; fertilization of trees for growth and for fruit, etc. Three hours a week.

8. ECONOMIC ENTOMOLOGY. This course is designed as an introduction to the more advanced work in entomology. In addition to the lectures and text-book work, students receive some training in the use of the microscope. Special attention is given to the general principles involved in dealing with injurious insects. Two hours a week.

9. VETERINARY SCIENCE. Instructon is given on how to locate and detect the more common ailments of our domestic animals, and methods of prevention and curing are discussed. Those diseases most frequently met with in this inter-mountain region receive special attention. Consideration is given to ideal sanitary conditions for different animals; and common errors are pointed out and corrections suggested. Students taking this course are expected to attend the clinic each Monday. Three hours a week.

10. CHEMISTRY. A series of elementary lectures on the facts and principles of chemistry, with their application to the art of agriculture. Experimental demonstrations of the statements made will be an important feature of the work; and the collections of the College chemical department will be drawn upon freely as a means of illustration. Two hours a week.

11. AGRICULTURAL BACTERIOLOGY. This course consists of a series of lectures and demonstrations on the relationship of

bacteria to agriculture. The purpose is to give the agriculturist a general knowledge of the fundamental facts of bacteriology, as they are related to agriculture; and to show that his various occupations are concerned in an attempt to obtain the aid of micro-organisms where they may be of advantage, and prevent their action where they would be a detriment. The subjects considered are the general nature of bacteria and fermentations; the bacteria in soil and water; the bacteria in dairy products; the relation of bacteria to miscellaneous farm products; and parasitic bacteria. Two hours a week.

12. IRRIGATION. Lectures on application of water, duty, seepage, evaporation, etc. Units for measurement of water, methods of subdivision and measurement, and other subjects relative to the irrigation interests on the farm. Two hours a week.

13. FARM ACCOUNTING. The importance and necessity of keeping accounts on the farm are emphasized. Methods are discussed and developed. Business forms and customs are studied, and after the underlying principles have been mastered, practical work in accounting is given. Three hours a week.

DOMESTIC SCIENCE AND ART.

1. COOKING LECTURES. Preceding the cooking practice one lecture is given each day. These lectures treat of the composition of foods and the general chemistry of cooking; rules for measuring and mixing; best methods of baking and boiling; deep and shallow frying; marketing and the selection of food; carving and serving food. The study of bills of fare, nutritive value of different foods, and of foods that are appropriately served together, is included in this course. The regular time allowed each class for practice is two two-hour periods a week. Special arrangements will be made, however, for those who wish to devote more time to this course; also for those who wish to perfect themselves in any particular line of cooking. Five hours a week.

2. COOKING PRACTICE. This course includes practice in all kinds of plain and pastry cooking, and some fancy cooking and confectionery making. Demonstration lessons are given on breakfast breads and hot cakes; croquettes of various kinds; dressing for fowls; boning, skewering, and larding meats; braizing, roasting, broiling, and other methods of cooking meats; the preparation of soups, sauces, salads, and salad dressing, together with other subjects difficult of treatment in class practice. A three course lunch is served daily throughout the term by the members of the cooking classes. The young ladies take turns in presiding at the table as hostess, and also in waiting upon the table. The skill and confidence that they acquire by this practice is of great value to them. Two hours a week.

3. HYGIENE. Lectures are given on the sanitary conditions best for the home; the danger from damp and unclean cellars; foul drains and sinks; the necessity for pure air and sunlight in the house. Talks are given on diet; regularity of habits; the necessity for a regular and sufficient amount of sleep; the care of personal health; home nursing and hospital methods. There are illustrative lessons on changing beds for the sick. Five hours a week.

4. SEWING. This course includes hand and machine sewing, the students completing as much of the work outlined in Courses 1 and 2 in Sewing as they can do successfully in the time allowed for the work.

5. DRESSMAKING. Gowns are cut out, basted, and entirely made by the students. Students furnish material and make their own garments. Two hours a week.

6. DESIGNING, CUTTING, AND FITTING. Instruction is given by talks on grace in design of costumes and harmony of colors. Special attention is given to hygienic modes of dress. The students are taught to make drawings of the costumes they design; they also learn to draft patterns from measurements. Further practice is given in cutting and fitting. Two hours a week.

7. FANCY WORK. This course includes Kensington embroidery, Roman cut work, Spanish laid work, drawn work, jeweled embroidery, and modern lace making. Two hours a week.

8. DAIRYING. Instruction in cheese and butter making, on both the factory and home dairy plans, is given in the College dairy. For lectures and plan of work, see Agricultural Course.

MECHANIC ARTS.

1. CARPENTRY A. Rudimentary exercises in sawing, ripping, planing, mortising, dovetailing, and joinery, furnish the details of this course. Correct methods of using and handling tools are emphasized.

2. CARPENTRY B. Sharpening and adjusting carpenter's tools, and saw filing, followed by simple cabinet work, constitutes the work of this course.

3. FORGING A. This course consists of preliminary exercises, such as drawing, bending, twisting, and shaping, and welding and making iron tools. Accuracy in methods and results is insisted upon.

4. FORGING B. The work of this course consists of practice in steel and iron welds, steel and steel welds, and general work in steel tool forging and dressing. Chisels, punches, reamers, hammers, tin shears, nippers, etc., are sample exercises. Prerequiste, Forging A.

THE SUMMER SCHOOL.

The College maintains, as an integral part of its work, a summer session, beginning on the Tuesday following Commencement Day, and continuing for five weeks. Every department of the College is represented, the courses of instruction being arranged to meet the peculiar needs of summer students. For the benefit

of teachers, special courses are provided in pedagogy, psychology, sloyd, and nature study, in addition to the regular work in Agriculture, Domestic Science, etc. College students desiring to make up conditions or prepare for advanced work are given all assistance possible. The entire equipment of the institution is available for the summer session, and every care is taken to preserve the standard and the spirit of the College. No admission requirements are prescribed, but students in all departments are directed by instructors to those courses in which they may pursue work to the best advantage. No one is advised to elect more than four courses. Students will receive such credits on the College register as the quality and amount of work done may warrant. Arrangements have been made with County Superintendents throughout the State to accept summer school credits in individual subjects in lieu of examination. In addition to the routine work of the session, a course of daily lectures is provided, appealing both to teachers and to the general public, and covering a wide range of interesting subjects. A matriculation fee of five dollars admits to any and all work offered, including the special lectures. Board and rooms can be secured throughout the city at the usual prices, and the College Dormitory also is open to summer students at a nominal rate.

GRADUATES.

ALUMNI ASSOCIATION.

The Alumni Association was organized in June, 1899. All those who hold degrees in any of the courses of the College are eligible to membership. In the first two classes, three students were graduated with the degree of Bachelor of Civil Engineering (B. C. E.). Since 1895, five prescribed courses have been offered, but the degree in each has been Bachelor of Science (B. S.), the particular course being specified in the diploma. In the list below, the courses of study are indicated by the following abbreviations:

—Agriculture—Agr.; Commerce—Com.; General Science—Gen. Sc.; Civil Engineering—C. E.; Mechanical Engineering—M. E.; Domestic Science—Dom. Sc.; Domestic Arts—Dom. Arts.

Officers for 1902-1903.

Rose Homer, '00, President.
William Peterson, '99, First Vice President.
Mrs. Anna Beers Petty, '98, Second Vice President.
Lewis A. Merrill, '95, Secretary.
William D. Beers, '99, Treasurer.

Executive Committee.

John H. Bankhead, Chairman.
William D. Beers, Almeda Perry,
Amanda Holmgren, Osborne Widtsoe.

Members.

1894.

Caine, John Thomas, Jr., Registrar and Instructor in English, A. C. U. ..... Logan, Utah.
Dougall, William Bernard (C. E.), Deceased .....
Erwin, Robert Wesley (Agr.), Chemist ....Granite City, Ill.
Hoyt, Martha (Dom. Arts), Manager Creamery ..Hoytsville, Ut.
Larsen, Andrew B. (C. E.), Railway Mail Clerk.....
..... Salt Lake City, Ut.
Shepard, Joseph Edward, Cashier Cache Valley Banking Co. .... Logan, Utah.

1895.

Culmer, William Fred (C. E.), Civil Engineer. Salt Lake City, Ut.
Merrill, Lewis A. (Agr.), Professor of Agronomy, A. C. U., ... Logan, Utah.

1896.

Langton, Willard S. (Gen. Sc.), Professor of Mathematics, A. C. U. .....Logan, Utah.

Larsen, Christian (Agr.), Instructor in English, L. D. S. University ..... Salt Lake City, Utah.
McLaughlin, Walter W. (C. E.), Irrigation Engineer, Utah Experiment Station ..... Logan, Utah.
Merrill, Amos N. (Agr.), Instructor in Manual Training, B. Y. C. .....Logan, Utah.
Merrill, Lorin A. (Agr.) Manager of Creamery. Richmond, Utah.
Rhead, Josiah L. (C. E.), Civil Engineer .....Coalville, Utah.
Thompson, Joseph R. (M. E.), Teacher .....Greenville, Utah.

1897.

Bankhead, John H. (Com.), Instructor in Commercial Department, A. C. U. .....Logan, Utah.
Barker, Olla (Gen. Sc.), Teacher .....Ogden, Utah.
Foster, Clara L. (Gen. Sc.), Professor of Domestic Science, A. C. N. M. .....Mesilla Park, N. M.
Hart, Alfred A. (Agr.), Farmer .....Bloomington, Ida.
Hart, Hermoine S. (Dom. Sc.), Teacher .....Bloomington, Ida.
Humpherys, Thomas H. (C. E.), Civil Engineer .Logan, Utah.
Jensen, Chas. A. (Com.), Soil Expert, U. S. Department of Agriculture ..... Washington, D. C.
Lundberg, Victoria (Dom. Sc.), Teacher ..... Logan, Utah.
Pond, Charles (Com.), Merchant ..... Lewiston, Utah.
Smith, Mamie (Dom. Sc.), Teacher .....Preston, Idaho.
McCarty, Anna Sponberg (Dom. Sc.), Deceased .....
Stewart, John (Gen. Sc.), Chemist, Logan Sugar Factory .... Logan, Utah.
Widtsoe, Osborne (Gen. Sc.), Professor of Chemistry and Physics, L. D. S. University .....Salt Lake City, Utah.
Wadsworth, Rachel Maughan (Dom. Sc.), Married. .Taylor, Ida.
Atkinson, Fred H. (Com.), Bookkeeper .....Baker City, Ore.
Bullen, Mabel (Dom. Sc.), Teacher .....Richmond, Utah.
Harris, Joel J. (M. E.), Teacher ..... Ogden, Utah.
Irvine, Alexander Ray (Gen. Sc.), Student in Germany .... Germany
Petty, Annie Beers (Dom. Sc.), Married .....Logan, Utah.

1899.

Baker, John S. (C. E.), Assistant Professor of Civil Engineering, A. C. of Montana ..... Bozeman, Mont.
Beers, William D. (C. E.), Assistant Irrigation Engineer, U. S. Geological Survey .....
Bullen, Ethel (Dom. Sc.), Teacher ..... Richmond, Utah.
Gordon, Robert J. (C. E.), Dominion Land Surveyor .... Alberta, Canada.
Hogensen, John C. (Com.), Soil Expert, U. S. Department of Agriculture ..... Washington, D. C.
Merrill, Fred W. (Agr.), Teacher, Oneida Stake Academy .. .. Preston, Idaho.
Peterson, Joseph H. (Com.) ..... Huntsville, Utah.
Peterson, William (Com.), Assistant Professor of Geology and Mineralogy, A. C. U. ..... Logan, Utah.
Simmons, Walter W. (Com.), Bookkeeper ..... Custer, Idaho.
Stover, Arthur P. (C. E.), Assistant Irrigation Expert, U. S. Department of Agriculture ..... Berkley, Cal.
Jensen, C. A. (Gen. Sc.), Soil expert, U. S. Department of Agriculture, ... Washington, D. C.

1900.

Crawford, Stanley (M. E.), Electrical Engineer.. Manti, Utah.
Fleming, Burton P. (C. E.), Assistant Irrigation Engineer, A. C. of Wyoming ..... Laramie, Wyo.
Homer, William H. (Gen. Sc.), Student .... Cologne, Germany.
Homer, Rose (Dom. Sc.), Instructor in Domestic Science, B. Y. C. ..... Logan, Utah.
Jensen, Joseph W. (C. E.), Assistant Professor of Civil Engineering, A. C. U. ..... Logan, Utah.
Maughan, Elizabeth (Dom. Sc.), Matron, School for the Deaf and Dumb ..... Ogden, Utah.
Nelson, William (Com.), Soil Expert, U. S. Department of Agriculture ..... Washington, D. C.
Taylor, George Francis (C. E.), Student, Harvard University ..... Cambridge, Mass.

1901.

Cooper, Blanche (Dom. Sc.), Teacher, Fielding Academy.... Paris, Idaho.
Evans, Esther (Gen. Sc.), Teacher .....Malad, Idaho.
Perry, Almeda (Gen. Sc.), Instructor in Physical Culture and Elocution, B. Y. C. .....Logan, Utah.
Smith, Charles B. (C. E.), Draughtsman General Land Office ..... Boise, Idaho.
Stover, Mattie E. (Gen. Sc.), Teacher .....Logan, Utah.

1902.

Holmgren, Amanda (Gen Sc.), Instructor in English, A. C. U. ..... Logan, Utah.
Pulley, Edward P. (M. E.), Instructor in Mechanical Engineering, A. C. U. ..... Logan, Utah.
Stewart, Robert (Gen. Sc.), Assistant Chemist, A. C. U..... ..... Logan, Utah.

GRADUATES WITH CERTIFICATES.

1894.

Bates, Attena (Dom. Arts) .....Hyde Park, Utah.
Blanchard, Byron (Com.) ..... View, Utah.
Broberg, Ernest J. (Com.) .....Logan, Utah.
Crittenden, Oscar (Agr.) ..... Hoytsville, Utah.
Crockett, John Alvin, (Agr.) ..... Logan, Utah.
Geertsen, Joseph (Com.) ..... Huntsville, Utah.
Ingalls, Field T. (Com.) ..... Springville, Utah.
Lundberg, Victoria (Dom. Arts) ..... Logan, Utah.
Malia, John A. (Com.) ..... Park City, Utah.
Packard, Alphonso O. (Com.) ..... Springville, Utah.
Stewart, Isaac P. (Com.), ... Logan, Utah.

1895.

Fitzgerald, John T. (Com.) ..... Park City, Utah.
Jensen, Charles A. (Com.) ..... Washington, D. C
Stewart, John (Com.) ..... Logan, Utah.

1896.

Carver, Lewis H. (Com.) .....Plain City, Utah.
Gibson, Wesley (Com.) .....Rexburg, Idaho

1897.

Larsen, Joseph J. (Agr.) .....Newton, Utah.
Nelson, Frank O. (Com.) .....Salt Lake City, Utah.
Redford, Abraham B. (Com.) ..... Spencer, Idaho

1898.

Davis, Arthur J. (Com.) .....Salmon City, Idaho.

1899.

Bell, Blanche Nelson (Dom. Arts) .....Logan, Utah.
Bullen, Blanche (Com.) ..... Richmond, Utah.
Crane, Bert (Com.) ..... Soda Springs, Idaho.
Hillman, William H. (Com.) .....Swan Lake, Idaho.
Larsen, Eliza (Dom. Arts) .....Collinston, Utah.
Payne, Veanetta (Dom. Arts) ..... Georgetown, Idaho.
Redford, Hyrum B. (Com.) ..... Spencer, Idaho.

1900.

Christensen, Mary (Com.) ..... Logan, Utah.
Hansen, James P. (Mech. Arts) ..... Spring City, Utah.
Judah, Thomas N. (Com.) ..... Butte, Mont.
Linford, James W. (Mech. Arts) .....St. Charles, Idaho.
Thomas, Burton L. (Mech. Arts) ..... Bloomington, Ida.
Zundel, Marie (Dom. Arts) ..... Willard, Utah.

1901.

Mattson, Emma Matilda (Dom. Arts) .....St. Charles, Idaho.
Tarbet, Loyal (Mech. Arts) ..... Logan, Utah.

1902.

Hart, Anne Davis (Com.) ..... Bloomington, Idaho.
McCausland, Charles A. (Com.) ..... Logan, Utah.
Stephens, David M. (Com.) .....Malad, Idaho.
Sidwell, Lafayette M. (Mech. Arts) ..... Manti, Utah.

Tenth Annual Commencement.

GRADUATES.

WITH DEGREES.

Bachelor of Science in Agriculture.—John Thomas Caine, III, Logan, Utah.

Bachelor of Science in Domestic Science.—Lydia Holmgren, Brigham City, Utah. Josephine Farnes Maughan, Petersboro, Utah.

Bachelor of Science in Civil Engineering.—Charles Franklin Brown, Loa, Utah. Thomas Clark Callister, Jr., Fillmore, Utah. Ambrose Pond Merrill, Richmond, Utah. Aquila Chauncey Nebeker, Logan, Utah. Frederick Dale Pyle, Opal, Wyoming.

Bachelor of Science in General Science.—Grace Fisher, Orleans, Indiana. May Maughan, Logan, Utah.

WITH CERTIFICATES.

Domestic Science.—Lydia Stephens, Malad, Idaho.

Commerce.—John Leatham Coburn, Wellsville, Utah. Mildred Forgeon, Cokeville, Wyoming.

Manual Training in Domestic Arts.—Myrtil May Barber, Marysvale, Utah. Mary Selina Morrell, Logan, Utah. Teressa Albina Nielsen, Preston, Idaho. Dora Quayle, Dingle, Idaho. Melissa Jean Simonds, Richfield, Utah. Louie Thomas, Logan, Utah.

Manual Training in Mechanic Arts.—Raymond Ralph Casto, Custer, Idaho. William Young, Castle Gate, Utah.

CATALOGUE OF STUDENTS.

GRADUATES.

Bankhead, John Haslam ..... Logan.
Beers, William Duke ..... Logan.
Cooper, Blanche .....McCammon, Idaho.
Crawford, Stanley ..... Manti.
Homer, Rose ..... Logan.

SENIORS.

Brown, Charles Franklin ..... Logan.
Caine, John Thomas ..... Logan.
Callister, Thomas Clark ..... Fillmore.
Fisher, Grace ..... Orleans, Indiana.
Holmgren, Lydia ..... Brigham.
Maughan, Josephine Farnes ..... Petersboro.
Maughan, May ..... Logan.
Merrill, Ambrose Pond ..... Richmond.
Nebeker, Aquila Chauncey ..... Laketown.
Pyle, Frederick Dale ..... Opal, Wyoming.

JUNIORS.

Adams, Hugh Robert ..... Logan.
Ballantyne, Richard Stewart ..... Logan.
Crawford, Edmund ..... Manti.
Egbert, Geneva ..... Logan.
Fisher, Ray Homer ..... Oxford, Idaho.
Greaves, Joseph E. ..... Preston, Idaho.
Homer, Roy Fisher ..... Logan.
Jardine, William ..... Cherry Creek, Idaho.
La Munyon, George Lynne ..... Shoshone, Idaho.
McCausland, Charles Arthur ..... Logan.

Maughan, Alice Farnes ..... Petersboro.
Paulson, Nels Peter ..... Logan.
Peirce, Eugenio Snow ..... Brigham City.
Stephens, David ..... Malad, Idaho.
Stoddard, Leon Buckley ..... Sumpter, Oregon.
Swendsen, Warren Gibbs ..... Richmond.
West, Frank Lorenzo ..... Ogden.
West, Ray Benedict ..... Ogden.

SOPHOMORES.

Adams, Orval Webster ..... Logan.
Allred, Irvin ..... Logan.
Clark, James Cecil ..... Panguitch.
Coburn, John Leatham ..... Wellsville.
Darley, Charles Thirkell ..... Wellsville.
Farrell, Francis David ..... Smithfield.
Forgeon, Mildred ..... Cokeville, Wyoming.
Frederickson, John Julius ..... Malad, Idaho.
Goodwin, Sarah Logan ..... Logan.
Hendricks, Lafayette ..... Richmond.
Howard, Lila ..... Rockland, Idaho.
Humpherys, Le Grande ..... Paris, Idaho.
Jardine, James Tertius ..... Cherry Creek, Idaho.
Jenkins, John Lewis ..... Elkhorn, Idaho.
Jones, Richard William ..... Logan.
Kerr, William Horace ..... Logan.
Lemmon, Claude Alumbee ..... Parowan.
Merrill, Melvin Clarence ..... Richmond.
Orbison, Robert Vance ..... Corinne.
Parkinson, George Leonard ..... Franklin, Idaho.
Peterson, Elmer George ..... Logan.
Porter, Charles Walter ..... Porterville.
Reno, Victor George ..... Ogden.
Rich, Samuel Grover ..... Blackfoot, Idaho.
Seamons, Jessie Ephraim ..... Rockport.
Smith, James Henry ..... Boise, Idaho.

Snow, Chester ..... Ogden.
Stephens, Lydia ..... Malad, Idaho.
Taylor, Joseph Edward ..... Salt Lake City.
Tuttle, John Henry ..... Manti.
Tyson, Abraham ..... Randolph.

FRESHMEN.*

SPECIAL.

Brown, Bertha May ..... Logan.
Caine, Blanche Elise ..... Logan.
Campbell, Mrs. George Peter ..... Rockland, Mass.
Cardon, Bartlie Temple ..... Logan.
Edwards, Annie ..... Logan.
Egbert, Nora ..... Logan.
Erickson, Carrie ..... Salt Lake City.
Hayes, Charles Edgar ..... Spanish Fork.
Hill, Scythia Evelyn ..... Franklin, Idaho.
Izatt, Catherine ..... Logan.
Jensen, William Arthur ..... Logan.
Love, Hazel ..... Salt Lake City.
Maughan, Ella ..... Logan.
Mortesen, Anna ..... Ogden.
Naylor, Mrs. Ada Roberts ..... Logan.
Nebeker, Lurena ..... Logan.
Peterson, Minnie ..... Logan.
Quayle, William L. ..... Logan.
Roberts, Vida Margaret ..... Layton.
Santschi, Eugene ..... Castle, Idaho.
Smart, Iva ..... Franklin, Idaho.
Smart, Zella ..... Logan.
Wendelboe, Charles Christian ..... Logan.
Wright, Hamilton ..... Blackfoot, Idaho.
Yates, Tyra ..... Logan.

*On account of one year's work having been added to the requirements of the regular baccalaureate courses, those who otherwise would rank as freshmen are now classed as second year students; hence there are no freshmen.

AGRICULTURE.

Second Year.

Bailey Meredith ..... Philadelphia, Pa.
Eliason, Benjamin Franklin ..... Moroni.
Hansen, Christian James ..... Collinston.
Irwin, Cecil Alexander ..... Salt Lake City.
Jordan, Alvin Edgar ..... Alice, Oregon.
McCarty, Edgar Cook ..... Monroe.
Mantor, Herbert Owen ..... Salt Lake City.
Palmer, Alfred Merle ..... Oxford, Idaho.
Pendleton, Mark Anthony ..... Salina.
Pond, Casper Whittle ..... Thatcher, Idaho.

First Year.

Barson, Denny Birdell ..... Clarkston.
Beard, Charles Edward ..... Summit.
Clark, Frank Archibald ..... Ogden.
Connelly, Mathias Joseph ..... Park City.
Conley, Lyman Daniel ..... Bloomington, Idaho.
Eccles, William Elmer ..... Portland, Oregon.
Evans, David Samuel ..... Riverdale, Idaho.
Fonnesbeck, Leon ..... Logan.
Hall, Leroy Williamson ..... Wellsville.
Hermanson, Chris, Jr. ..... Redmond.
Hillman, Robert ..... Oxford, Idaho.
Hobson, Jesse Junius ..... Ogden.
Howes, Joseph Henry ..... Marysvale.
Kesler, Hoy Weir ..... Wellsville.
McDermott, John Franklin ..... Elko, Nevada.
Oldham, Edward Price ..... Paradise.
Oldham, William Brown ..... Paradise.
Smith, William Richard ..... Logan.
Stevens, Orson Albert ..... Holden.
Walton, William Wallace ..... Auburn.
Woodbury, William Henry ..... Salt Lake City.

Winter Course.

Caine, Lawrence Ballif ..... Logan.
Fredrickson, Fred ..... Brigham City.
Fridal, Knud Hansen, Jr. ..... Elwood.
Jessop, Moroni ..... Millville.
Johnson, Bryan Beim ..... Holden.
Scott, Arthur Leroy ..... Millville.
Scott, David Moroni ..... Millville.
Scott, Harold Sylvester ..... Millville.
Taylor, James Green ..... Millville.
Whitney, William Wells ..... Millville.
Wright, Joseph Alma ..... Coalville.

DOMESTIC SCIENCE.

Second Year.

Egbert, Maude ..... Logan.
Hughes, Claudie ..... Willard.
Jorgensen, Orilla ..... Hyde Park.
King, Priscilla ..... Logan.
Mattson, Emma Elida ..... St. Charles, Idaho.
Munk, Josie ..... Manti.
Nebeker, Laura ..... Logan.
Pearce, Flora ..... Randolph.
Powell, Inez ..... Logan.
Stoddard, Carmen Earselle ..... Logan.
Stoddard, Eva ..... Logan.

First Year.

Carlton, Alice ..... Bear River City.
Daniels, Mary ..... Malad, Idaho.
Eccles, Pearl ..... Ogden.
Evans, Mary ..... Riverdale, Idaho.

Fisk, Bessie Estell ..... Parma, Idaho.
Flint, Letitia ..... Layton.
Griffiths, Margaret ..... King.
Groesbeck, Josephine ..... Logan.
Hayball, Nellie ..... Logan.
Homer, Mell ..... Logan.
Hunt, Della ..... Richmond.
Jones, Alice ..... Hooper.
Kerr, Cordellya Lois ..... Logan.
Kerr, Bertha ..... Logan.
Lowe, Bertha ..... Franklin, Idaho.
Matthews, Hannah ..... King.
Maughan, Edna Harriet ..... Logan.
Morgan, Catherine ..... Cokeville, Wyoming.
Nebeker, Luella ..... Laketown.
Nebeker, Mabel ..... Laketown.
Parkinson, Theresa ..... Franklin, Idaho.
Watts, Nellie Eleanor ..... Blaine.

DOMESTIC ARTS.

Third Year.

Barber, Myrtie May ..... Marysvale.
Morrell, Mary Selina ..... Logan.
Nielsen, Teressa Albina ..... Preston, Idaho.
Quayle, Dora ..... Dingle, Idaho.
Simonds, Melissa Jean ..... Richfield.
Thomas, Louie ..... Logan.

Second Year.

Busenbark, Mabel ..... Blackfoot, Idaho.
Campbell, Rachel Elise ..... Salt Lake City.
Christensen, Laura ..... Smithfield.
Cooper, Mary ..... McCammon, Idaho.

Curtis, Ethel ..... Thatcher, Arizona.
Gardner, Lillian ..... Afton, Wyoming.
Hale, Mrs. Alice Evangeline ..... Logan.
Hale, Rebecca Viola ..... Logan.
Hansen, Ida Marie ..... Logan.
Hanson, Etta Josephine ..... Logan.
Hess, May .....Georgetown, Idaho.
Hoffman, Lena Martha ..... Logan.
Jones, Hettie ..... Wellsville.
Linford, Mrs. James Wesley ..... Bloomington, Idaho.
Mattson, Bertha Jane ..... Ogden.
McAlister, Venna Harriet ..... Logan.
Merrill, Alva Retta ..... Richmond.
Moon, Annie ..... Henderson Creek, Idaho.
Moon, Nellie ..... Henderson Creek, Idaho.
Reid, Jennie ..... Manti.
Vibrans, Gertrude ..... Cokeville, Wyoming.
Whitlock, Clara ..... Marysvale.
Witten, Etta Virginia ..... Ogden.

First Year.

Adams, Marion Ferdinand ..... Logan.
Allen, Millie ..... Weston, Idaho.
Baker, Bessie Fay ..... Boise, Idaho.
Baker, Minnie Lelah ..... Boise, Idaho.
Barber, Nellie ..... Marysvale.
Barson, Mattie ..... Clarkton.
Barson, Vilate ..... Clarkston.
Batt, Cicely ..... Logan.
Baugh, Olive Estelle ..... Logan.
Bybee, Melissa ..... Lewiston.
Davis, Barbara Buford ..... Cherry Creek, Idaho.
Dunford, Florence ..... Bloomington, Idaho.
Flint, Phebe ..... Kaysville.

Fullmer, Dott ..... Circleville.
Gibbs, Rachel ..... Logan.
Hamson, Beatrice ..... Oxford, Idaho.
Hanson, May ..... Logan.
Hunt, Dora ..... Richmond.
Hyde, Rose ..... Logan.
Lowe, Addie ..... Franklin, Idaho.
Lundberg, Anna ..... Logan.
McEntire, Josephine Cora ..... Harrisville.
McNeil, Annie May ..... Logan.
Mattson, Annie Maria ..... St. Charles, Idaho.
Peacock, Rosabell ..... Marysvale.
Pendry, Sarah Marie ..... Paris, Idaho.
Rust, Lima ..... Logan.
Smith, Jennet Catherine ..... Preston.
Steffenhagen, Augusta ..... Logan.
Ward, Eva ..... Pocatello, Idaho.
Witten, Rozella Maud ..... Ogden.

Winter Course.

Cantwell, Letitia ..... Logan.
Cowley, Ella ..... Logan.
Mattson, Edith ..... St. Charles, Idaho.
McDermott, Elsie Margaret ..... Elko, Nevada.
Montrose, Sanie ..... Weston, Idaho.
Page, Cora ..... Payson.
Peterson, Dora ..... Hyrum.
Rich, Mrs. Maude ..... Brigham City.

COMMERCE.

Second Year.

Barrack, James Edward ..... Salmon, Idaho.
Baxter, Elva Bell ..... Roswell, Idaho.
Bennett, Harry ..... Blackfoot, Idaho.

Berryman, Harry George ..... Blackfoot, Idaho.
Cooper, Coral ..... McCammon, Idaho.
Darley, William Owen .....Wellsville.
Elsmore, James Austin ..... American Fork.
Farnsworth, Dennis ..... Rexburg, Idaho.
Gleed, Henry ..... Lima, Montana.
Hammond, Joseph ..... Ursine, Nevada.
Hess, Edna ..... Georgetown, Idaho.
Lytle, Freeland Henry ..... Ursine, Nevada.
Lytle, Samuel ..... Ursine, Nevada.
McKinnon, Archibald William ..... Randolph.
Morgan, Wayne ..... Collinston.
Mortensen, Hardy ..... Levan.
Nebeker, Myrtilla ..... Sigurd.
Osmond, Maud ..... Bloomington, Idaho.
Richardson, Parley Cornelius ..... Plain City.
Riter, Benjamin Franklin, Jr. ..... Logan.
Robinson, John Rowlandson ..... Paragoonah.
Sampson, Irving ..... Silver City, Idaho.
Smith, Abraham ..... Poplar, Idaho.
Stoddard, Archibald Williamson ..... Spencer, Idaho.
Tarbet, David ..... Logan.
Walton, George Ossian ..... Logan.

First Year.

Adams, Jabez Samuel ..... Layton.
Bates, Clara Rebecca ..... Monroe.
Bennett, Calvin ..... Lago, Idaho.
Bennett, Nellie ..... Lago, Idaho.
Blechert, Johanna ..... Geneva, Idaho.
Brossard, Fred Utilus ..... Oxford, Idaho.
Brossard, Nellie ..... Logan.
Bybee, Maria ..... Lewiston.
Cardon, Edwin Voss ..... Willard.
Carter, Annie Edna ..... Elwood

Chatterley, Nellie ..... Kimberly.
Cheney, Otis Theodore ..... Fairview.
Chester, Colin Arthur ..... Soda Springs, Idaho.
Colby, LeGrand Collins ..... Mendon.
Cooper, William Wyley ..... Dempsey, Idaho.
Davenport, Emery Remington ..... Hood River, Oregon.
Deschamps, Nellie ..... Malad, Idaho.
Draper, Parley James ..... Moroni.
Easton, Clara ..... Beaver City.
Eldridge, Roscoe Garnett ..... Coalvile.
Erickson, Joseph Albert ..... Richmond.
Findlay, Alexander Merle ..... Kanab.
Forgie, William James ..... Milford.
Frew, Wallace ..... Idaho Falls, Idaho.
Gardner, Edwin LeRoy ..... Afton, Wyoming.
Gardner, Wilford Woodruff ..... Afton, Wyoming.
Gentry, Ralph ..... Coalvile.
Hansen, George August ..... Logan.
Hanson, Arthur Lorenzo ..... Collinston.
Heiss, Eugene Leverich ..... Salt Lake City.
Holmes, John Hobson ..... Oakley, Wyoming.
Hughes, Gomer ..... Samaria, Idaho.
Illum, John Peter ..... Malad, Idaho.
Johnson, Heber Francis ..... Richmond.
Johnson, Andrew Anton ..... Richmond.
Johnson, Eugene ..... Millvile.
Jones, Mary May ..... Malad, Idaho.
Kofoed, Clarence Henry ..... Weston, Idaho.
McNiel, Marian ..... Logan.
Nickell, John Edward ..... Idaho Falls, Idaho.
Olsen, Alma ..... Logan.
Owens, Madison Samuel ..... Logan.
Payne, Robert Arthur ..... Bloomington, Idaho.
Peck, Bert Edward ..... Roswell.
Pheney, John Elmer ..... Cache Junction.
Poulsen, George William ..... Logan.

Rees, Philip Morgan ..... Cherry Creek, Idaho.
Robinson, Brigham, Jr. ..... Coalville.
Smith, Richard Thompson ..... Poplar, Idaho.
Sorensen, Charles James ..... Hyrum.
Stewart, Ella ..... Plain City.
Swendsen, Media ..... Richmond.
Thomas, Samuel Ferry ..... Richmond.
Thompson, Albert Henry ..... Richmond.
Toombs, Wallace Ray ..... Carlin, Nevada.
Tremelling, Elijah Josephus ..... St. Charles, Idaho.
Wallace, Cadmus ..... Whitney, Idaho.
Walters, Thomas Poppleton ..... Wellsville.
Welch, John William ..... Coalville.
Whitten, Louville ..... Blackfoot, Idaho.
Zundel, Earl ..... Thatcher, Arizona.

MECHANIC ARTS.

Fourth Year.

Casto, Ralph Raymond ..... Custer, Idaho.
Dahle, Fred Arthur ..... Logan.
Young, William ..... Castle Gate.

Third Year.

Madsen, Howard Peter ..... Manti.

Second Year.

Blake, Isaac Brigham ..... Pima, Arizona.
Clark, Elijah ..... St. Charles, Idaho.
Hughes, Robert ..... Samaria, Idaho.

First Year.

Allen, David Adams ..... Teasdale.
Allen, William Benjamin ..... Teasdale.
Anderson, Andrew John ..... Salt Lake City.

Badger, Leroy ..... Kelton.
Bankhead, James Haslam ..... Wellsville.
Bingham, Benjamin Franklin ..... Trenton.
Burris, Eugene Harold ..... San Francisco, California.
Campbell, Raleigh ..... Rosette, Idaho.
Carter, Wesley James ..... Garland.
Chaffin, Arthur Lafayette ..... Teasdale.
Clayton, Don Carlos ..... Provo.
Endberg, Fred ..... Randolph.
Finlayson, George Clifford ..... Logan.
Finlayson, Reginald Patric ..... West Jordan.
Frew, Hugh C. ..... Idaho Falls, Idaho.
Hansen, Moroni ..... Logan.
Harmon, Henry James ..... Parker, Idaho.
Harmon, Martin ..... Parker, Idaho.
Hess, Clarence Wilson ..... Georgetown, Idaho.
Hoagland, Robert Ray ..... Elba, Idaho.
Jacobs, William Bertram ..... Salem, Idaho.
Johnson, Joseph Erastus ..... Moroni.
Kelly, George ..... Park City.
Larsen, William Lewis ..... Newton.
McClellan, Orla Elmer ..... Payson.
McDermott, James Bartholomew ..... Lamoille, Nevada.
McKeon, Alfred Patrick ..... Milford
Murray, Benjamin Franklin ..... Caldwell, Idaho.
Nelson, Alexander Edward ..... Logan.
Ohlson, Albert Alexander ..... Hooper.
Peay, Edwin Arthur ..... Provo.
Peterson, Nephi ..... Logan.
Pixton, John Edward ..... Taylorsville.
Pullum, Isaac LeRoy ..... Trenton.
Reader, Ray ..... Vernal.
Roberts, Herbert Leason ..... Hennefer.
Roberts, William Daniel ..... Mercur.
Rowland, Thomas Greaves ..... Logan.
Scott, George Washington ..... Salt Lake City.

Shaw, Austin Herman ..... Ogden.
Smith, George A. ..... Poplar, Idaho.
Smith, Lot ..... Fielding.
Tarbet, Ether ..... Riverside.
Taylor, John ..... Salt Lake City.
Terry, Redell Stephen ..... Draper.
Thomas, Howard Burnham ..... Logan.
Turpin, George Melvin ..... West Jordan.
Wade, James Holt ..... Eureka.
Walker, George Andrew ..... Mendon.
Wangsgard, Fred Christian ..... Huntsville.
Wilbur, Grant Prentiss ..... Eden, Oregon.
White, Milton ..... Vernal.
Willis, Arthur Merrill ..... Kanarra.
Young, Samuel Grant ..... Salt Lake City.

Winter Course.

Andrews, John Montgomery ..... Logan.
Baker, George Simon ..... Kelton.
Ballantyne, Alando Bannerman ..... Logan.
Bankhead, George Haslam ..... Wellsville.
Betts, David Samuel ..... Payson.
Ecklund, Theodore ..... Newton.
Jorgensen, Martin ..... Logan.
Kesler, Edward James ..... Central, Idaho.
Kelly, William Conyer ..... Park City.
Kuphaldt, Harold Edward ..... Bingham.
Larsen, Peter ..... Greenville.
Leigh, Samuel George ..... Cedar City.
Nelson, Arthur ..... Greenville.
Payne, Joseph Burton ..... Bloomington, Idaho.
Redelings, Elmer William ..... Corinne.
Smith, Le Roy ..... Greenville.
Sorensen, Ernest Hyrum ..... Logan.
Watterson, Alma Eugene ..... Logan.

Webb, George ..... Lehi.
Wells, Hugh Nelson ..... Woodruff, Idaho.
Wells, Lawrence Ray ..... Woodruff, Idaho.
Whitten, Frank ..... Blackfoot, Idaho.

ENGINEERING PREPARATORY.

Second Year.

Acuff, Elmer Bruce ..... Blackfoot, Idaho.
Archibald, Allen Henry ..... Wellsville.
Bird, Charles ..... Mendon.
Brownell, Meade ..... Ogden.
Egbert, Samuel Roy ..... Logan.
Farr, Thomas Ford ..... Ogden.
Fenn, Ray Randolph ..... Provo.
Grose, George ..... Park City.
Hanson, Seth Alfred ..... Logan.
Howell, Luther Maughan ..... Wellsville.
Johnson, Thomas ..... Vernal.
Kirk, Elmer Tilghman ..... Wilmington, Ohio.
Kearns, James Leonard ..... Park City.
Lee, Oscar Richard ..... American Fork.
Moench, Frank Moses ..... Ogden.
Powell, Jonathan Sockwell ..... Logan.
Sargent, James Elliott ..... Marysvale.
Schaub, Eugene ..... Logan.
Tarbet, Joseph Abner ..... Logan.
Thatcher, Edgar Ballif ..... Logan.
Turner, Thomas Henry ..... Ogden.

First Year.

Adams, George Edward ..... Logan.
Anderson, Brigham Jefferson ..... Lehi.
Andrews, Michael, Jr. ..... Logan.

Ashton, Maurice ..... Pocatello, Idaho.
Beck, Wilford William ..... Newton.
Bjerregaard, Walter ..... Ephraim.
Campbell, Donald Stewart ..... Salt Lake City.
Carver, Heber ..... Ogden.
Chambers, Parley Calvin ..... Smithfield.
Christensen, Peter Victor ..... Hyrum.
Clark, John Othello ..... Pleasant Grove.
Crawford, Edwin Merriam ..... Manti.
Edwards, Edward C. ..... Cache Junction.
Farr, John Clement ..... Ogden.
Finlayson, Vernon ..... Logan.
Gabrielsen, Hans Morton, Jr. ..... Logan.
Gordon, Benjamin ..... Murray.
Hamer, John Claire ..... Ogden.
Harris, Frank ..... Butte, Montana.
Hoffman, Edward ..... Logan.
Homer, Russell King ..... Logan.
Hudman, Ellis ..... Slatterville
Hughes, Roy Edward ..... Blackfoot, Idaho.
Hunter, Joseph Greenwood ..... American Fork.
Jacobs, Elmer Acred ..... Pleasant Grove.
Jennings, Frank Kimball ..... Salt Lake City.
Jones, Calvin Sparks ..... Fairview.
Jones, Walter Maughan ..... Wellsville.
Kershaw, Samuel Maisey ..... Layton.
Krumperman, Bert ..... Ogden.
Lewis, James Leonard ..... St. Anthony, Idaho.
Lowe, George Henry ..... Willard.
Mason, Frank Marion ..... Willard.
Nuffer, Luther ..... Preston, Idaho.
Parker, James Cooper ..... Wellsville.
Perry, Seth Eugene ..... Vernal.
Peterson, Oscar Arthur ..... Sandy.
Peterson, Orson Hyrum ..... Newton.
Peterson, Preston Geddes ..... Baker City, Oregon.

Porter, Bessie ..... Portervile.
Porter, Clara ..... Portervile.
Poulson, Earl Terodore ..... Morgan.
Paulsen, Frederick ..... Morgan.
Preston, William Booker ..... Logan.
Roche, William Earl ..... Corinne.
Rolapp, Karl Henry ..... Ogden.
Russell, Thomas ..... West Jordan.
Shelton, Walter Hamilton ..... West Jordan.
Sidwell, Gideon Wilson ..... Manti.
Swenson, Dan Arthur ..... Pleasant Grove.
Thatcher, Laurence Young ..... Logan.
Tuttle, Frank Luther ..... Manti.
Watson, William Earl ..... Manti.
Winkler, Ernest ..... Mt. Pleasant.

PREPARATORY.

Adams, Catherine Maria ..... Layton.
Ahlin, Joseph Edward ..... Santaquin.
Baugh, William Leroy ..... Logan.
Bingham, Edwin Walker ..... Trenton.
Bissegger, August John ..... Providence.
Blair, Seth Harvey ..... Logan.
Bowers, John Wesley ..... Logan.
Brossard, Armand ..... La Praine, Canada.
Burton, William James ..... Custer, Idaho.
Campbell, Roy Francis ..... Beaver.
Carter, Brigham ..... Vernal.
Conger, William James ..... Randolph.
Cox, Edward Eugene ..... Manti.
Cranney, Keith ..... Logan.
Davis, Charles Wesley ..... Soda Springs, Idaho.
Davis, Titus David ..... Cherry Creek, Idaho.
Driscoll, Edwin ..... Pocatello, Idaho.
Droubay, Oscar Adolph ..... Tooele.

Fife, Guy ..... Providence.
Frank, Justus ..... Logan.
Graehl, Eli ..... Snowville.
Groesbeck, Helen ..... Logan.
Hadley, James ..... Swan Lake, Idaho.
Hansen, Joseph Parley ..... Weston, Idaho.
Hansen, Oliver ..... Hyrum.
Hopkins, John Byom ..... Logan.
Howard, Horace ..... Rockland, Idaho.
Hughes, Anna ..... Willard.
Hyde, Marion ..... Logan.
Janes, Clara ..... Hyrum.
Jensen, Hans Christian ..... Mink Creek, Idaho.
Jones, John Morse ..... Mt. Sterling.
Ketcham, Samuel Bechmore ..... Burbank.
Kerr, John Andrew ..... Logan.
Layton, John ..... Layton.
Livingston, Edward Roy ..... Ogden.
Lowe, Moroni Winson ..... Franklin.
Madsen, Carl ..... Mt. Pleasant.
Madsen, Clarence ..... Manti.
Mathisen, Emma ..... Ovid, Idaho.
Mathisen, Sophia Emestine ..... Ovid, Idaho.
Matson, Elnore ..... Logan.
McNeil, William Bell ..... Logan.
Moon, Archie ..... Henderson Creek, Idaho.
Munk, Oliver ..... Logan.
Newey, Aaron ..... Randolph.
Norr, Luella Jane ..... Logan.
Olson, Rangnar Gus ..... Logan.
O'Rell, Charles Leroy ..... Hyrum.
Parker, Wilford Henry ..... Wellsville.
Pehrson, Carl William ..... Logan.
Perkins, Percival Reese ..... Salt Lake City.
Phillips, James Wilford ..... Porterville.
Ream, William Wesley C. ..... Dingle, Idaho.

Robbins, Myron Wilford ..... Snowville.
Simmons, George Hyrum ..... Trenton.
Stirland, George Henry ..... Providence.
Stuart, John Henry ..... Wellsville.
Sweeney, John Thomas ..... Park City.
Torbensen, Torben Alfred ..... Snowville.
Walsh, William ..... Mackay, Idaho.
Walton, Joseph Henry ..... Arbon, Wyoming.
Watterson, Moses D. ..... Logan
West, Wilford ..... Mt. Pleasant.
Wheeler, Jerome ..... Slaterville.
Woodhouse, Elliot ..... Lehi.
Wursten, Adolph Alfred ..... Logan.
Zundel, Lorenzo Eberhort ..... Thatcher, Arizona.

SUMMARY OF STUDENTS.

Graduates	5
Seniors	10
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Second Year	94
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